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The Canadian Builder and Carpenter

PUBLISHED ONCE A MONTH BY THE COMMERCIAL PRESS, LIMITED

Vol. 4 TORONTO, FEBRUARY, 1914 No. 2

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High Grade Gypsum Products

TRADE CROWN MARK

"Crown Brands"

Cement Plasters
Neat Hair Fibred, For Base Coat

Wood Fibre Plasters
Fibred with wood, Unsanded

Finishing Plaster
Cheaper than Plaster Paris

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Lythmore :: Ontario

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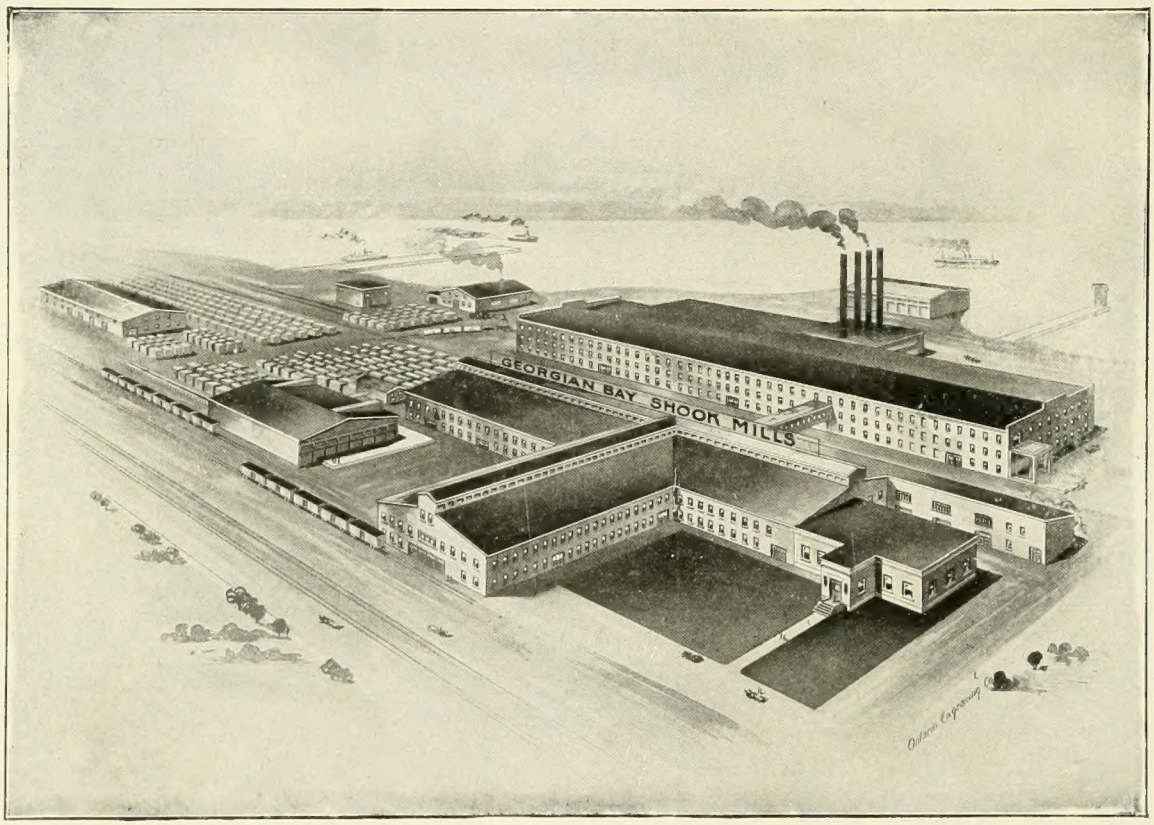
Midland Planing Mill Products

The Leading Stock Lines



The Largest Plant in Canada. Manufacturing Planing Mill Products
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Our New Door Catalogue for 1914 is now ready. New features of interest to every Builder

Always Something New

We want every reader of this journal to have a copy

WRITE FOR IT TO-DAY

Georgian Bay Shook Mills, Limited

MANUFACTURERS FROM THE TREE TO THE FINISHED PRODUCT

Midland, Ontario

Midland Planing Mill Products

The Leading Stock Lines

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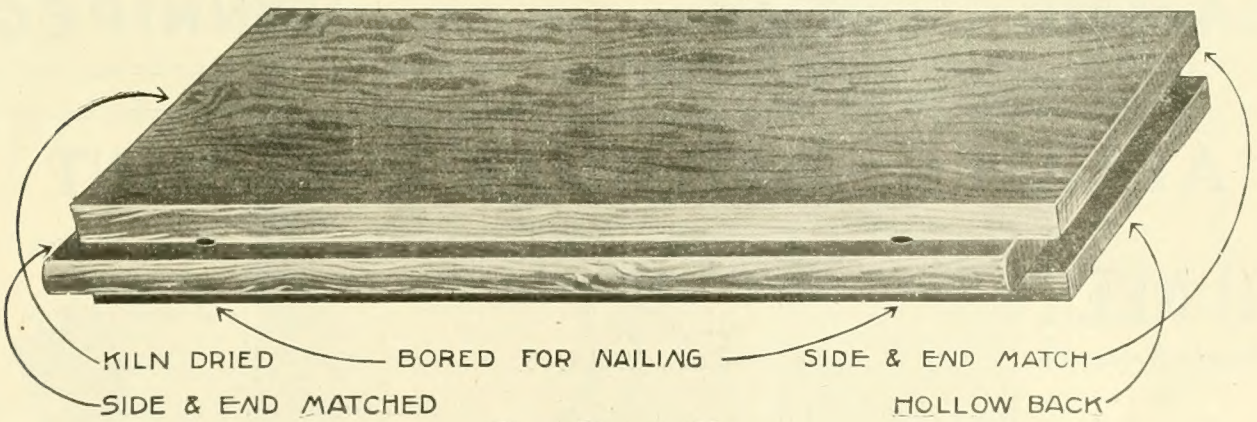
Pointer No. 1.—Government Tests show that in wearing qualities, it will out-last Birch or Oak.
Pointer No. 2.—Its appearance is rich and even in color, similar to Extra Selected Red Oak Stock.
Pointer No. 3.—On account of its close texture, it machines nicely and does not sliver.
Pointer No. 4.—Our stock is from around Midland, where the finest Beech and Maple in North America grows.
Pointer No. 5.—This stock runs strong to Long Lengths.
Pointer No. 6.—It makes the **Best** hardwood flooring.
Pointer No. 7.—It's the **Cheapest** hardwood flooring, only because it is the least known.
Pointer No. 8.—9/16 Beech is the Greatest Bargain Buy to-day. Especially suited for Apartment Houses and Private Dwellings.



Grading, Etc.

Selected Red:—Has one face clear of all defects and is selected for color. Lengths 3 ft. to 16 ft.
Mill Run:—Contains product of the board with No. 2 strictly out. 13/16 in. stock runs strongly to clear, about 75% being clear. 9/16 stock is practically all clear.

Flooring is measured ¾ in. over face.
13/16 in. Flooring Standard Widths are 1¾, 2¼, and 2¾ in. face.
9/16 in. Flooring Standard Widths are 1¾, 2, and 2¼ in. face.

PRICES

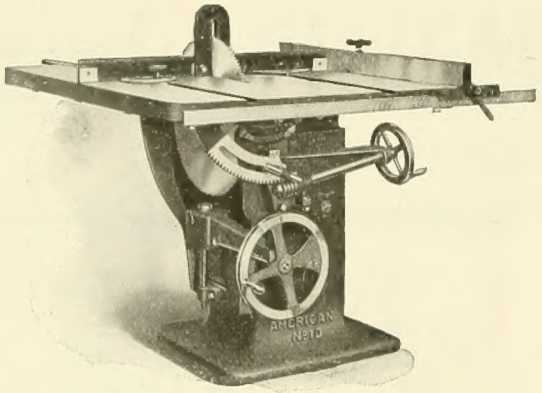
13/16 in. Selected Red Standard Widths	$54.00 per M.	9/16 in. Selected Red, Standard Widths	$44.00 per M.
13/16 in. Mill Run, Standard Widths	44.00 per M.	9/16 in. Mill Run, Standard Widths	36.00 per M.

Prices above are F.O.B. Cars, Midland

Georgian Bay Shook Mills, Limited

MANUFACTURERS FROM THE TREE TO THE FINISHED PRODUCT

Midland, Ontario



"American" No. 1 Variety SAW BENCH

Designed especially for fine and accurate cutting on all classes of work in furniture, sash, door and blind, cabinet, pattern and general woodworking shops. The machine is made in three ways, with a boring or mortising attachment and without either of these. It takes 20" between saw and fence and saws up to 14" may be used. The mortising attachment accommodates chisels up to ½".

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Portable Woodworker

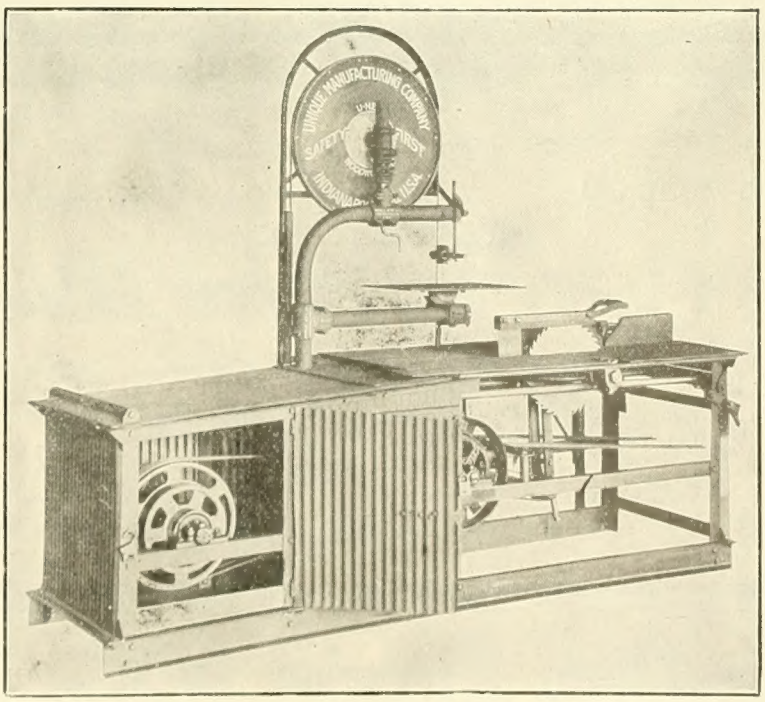
The only

Straight Line
Hand Draw Cut

Easy to operate. Cuts angles in one-fourth the time of other machines.

Safety First

Machine is guarded so that it can be operated with perfect safety



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Equipped with Gasoline or Electric Motor

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Write for prices to-day

UNIQUE MANUFACTURING COMPANY
420-422 Murphy Building, Indianapolis, Ind., U.S.A.

What Would This Machine Save for You?

When You Are Buying a Woodworking Machine

Buy the best in the market—one that you are sure will do your heavy, as well as your light work. If you do not possess a Portable Combination Wood Worker, no doubt you are thinking seriously of getting one, as all the up-to-date builders are installing them. They know that they cannot compete with other builders without one. Be sure yours is a Hutchinson, it will do all that is claimed for it.

The Hutchinson Woodworker is not a toy machine. It will do your heavy, as well as your light work, cutting anything from a 1/16 to a 6 x 16 in. timber, pine or oak; and by turning the stick, you can cut a 12 x 16 timber, making a much neater job than by cutting in the old way. It is equally as good when used for Ripping, besides being a big money-saver. To give an idea of the time it will save (and this is a very conservative estimate) it will take two men two minutes each (four in all) to make one cut through 6 x 16 Georgia Pine timber by hand, while with my saw it will take 20 seconds. Thus, this saw will accomplish 12 cuts to 1 by hand.

Does this not mean time and money to you, Mr. Builder, in cutting studs, Rafters, Braces, Boring, for Dowling, Tenoning, Dadoing, Pulley-Stiles, Door Jambs, Routing Stair Strings, and mitering of any kind, Sand Papering, Ripping, Tool Grinding, etc.? It can be set for any of these operations in one minute, and once set, will do as much work in two hours as a carpenter will do in 10 hours. Besides your men are let out of the heaviest part of the work, and have more strength and speed to put in on the erecting. A laborer moves the stuff around—the machine is adapted for many kinds of different work. The motor can also be used to run various machines, such as jointer, band-saw, jig-saw, mortice machine or poney planer, and will go right through its work without stopping.

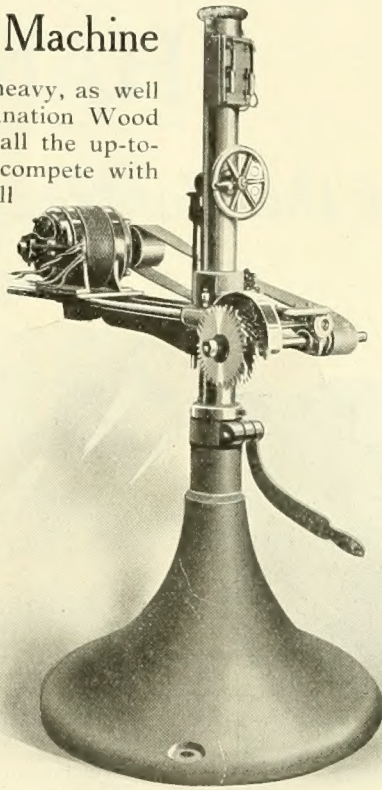


Fig. 2

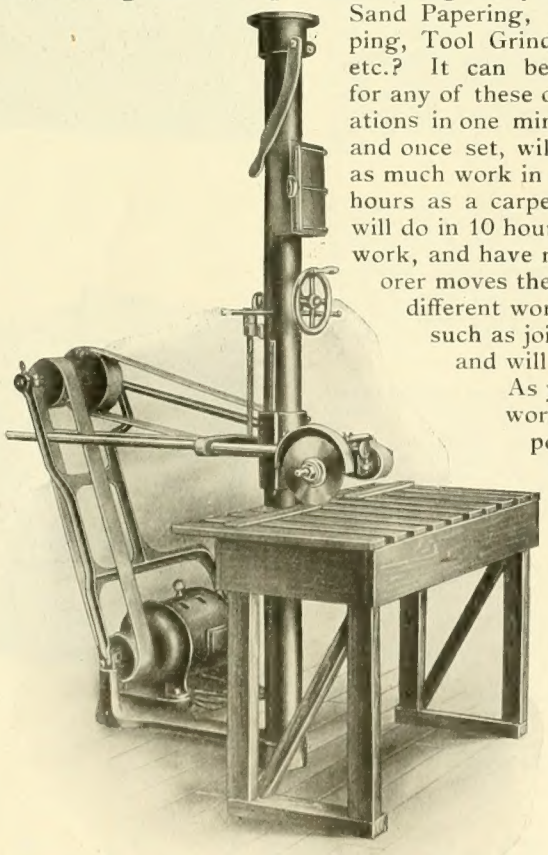


Fig. 1

As you are aware, there is no use setting a boy to do a man's work. Well, this is the Man working, and the average cost for power in Toronto is $3.00 per month for large machine, and $1.00 for small machine, as per cuts No. 1 and No. 2. The small machine will do the same class of work as the large machine except that it is not so powerful, being operated by a 1 h.p. motor, while the large machine is operated by a 3 h.p. motor. The small machine can be attached to any ordinary light wire, experiences no trouble in cutting a 2 in. plank, and is easily moved from room to room if necessary.

Order Your "Hutchinson" Now

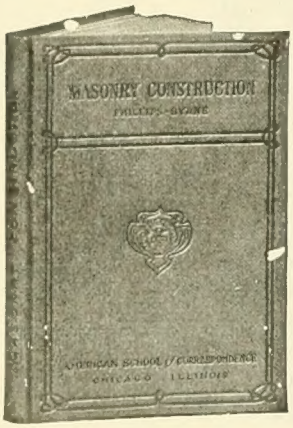
It will soon make its own cost—saving from one hundred to four hundred per cent. I will guarantee it to do all the work mentioned in the Catalogue. We also manufacture No. 1 machine to set stationary, running from a line shaft, or Gas Engine for straight cut off saw, dadoing, etc., a counter shaft being set in place of iron base and motor on the floor.

Write for a catalogue to-day

The Hutchinson Wookworker Co., 5 Duke Street, Toronto

Practical, Moderate-Priced HANDBOOKS

For the Contractor, Architect, Carpenter and Builder



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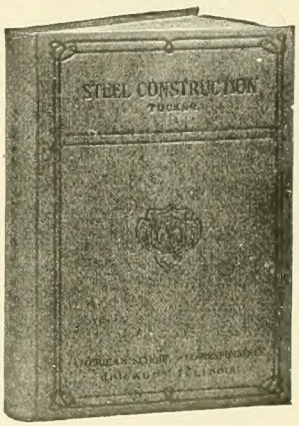

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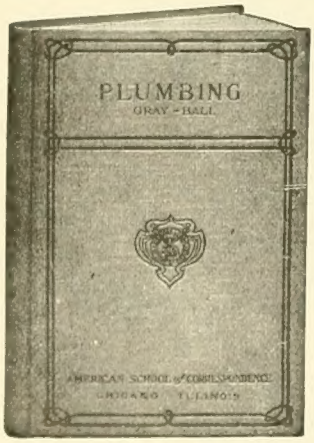

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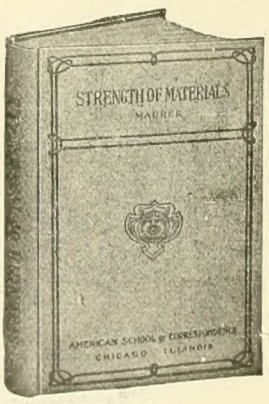

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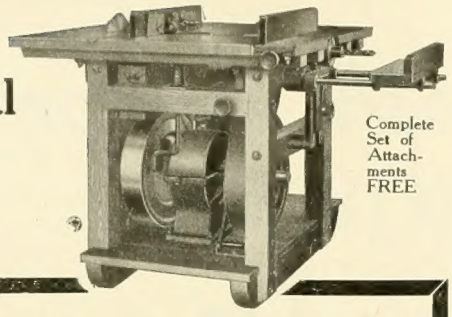

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Eveready Saw Rig

A brainy, time and labor saver for wise men, who are looking for the shortest cut to results. The OSHKOSH EVEREADY SAW RIG saves *six men's work*—mark that well. Besides cross-cutting and rip-sawing, this mechanical wonder-worker joints, sands, jig-saws, grooves, bores, miters and grinds tools. Can you *beat* it? Can you *equal* it—anywhere? Then why not get an "Eveready" Rig and cut down your production costs.

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This is the Mixer that sets the pace; the result of many years practical experience of men who know the "mixing game" from A to Z. It will pay any Contractor to know more about this wonderfully effective "4-way" Mixer. *Send for all the facts!*

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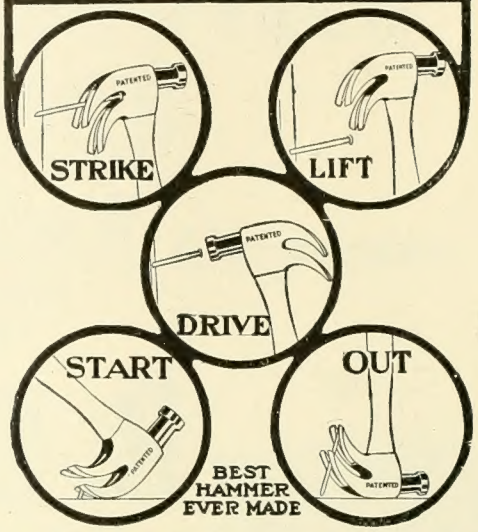

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How about pulling the **Nail**? Does it come out **easy** or do you use a **Block** to do it?!! Try the DOUBLE CLAW HAMMER which will do the work at once without hard work and **quickly.** It pays for itself the first day. Many carpenters say they have used the D.C.H. and would not sell it for Fifty Dollars.

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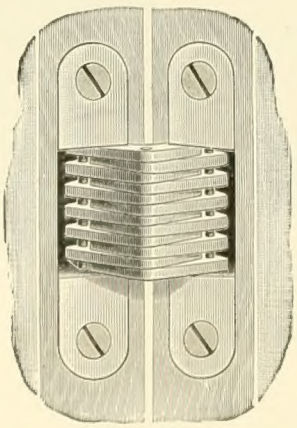
Double Claw Hammer Co. 453 Broadway Brooklyn, N.Y.

Soss Invisible Hinge

For use on Panel Work, Lockers Closets, Counter Flaps, Partition Doors, Cabinets, etc.



Soss Invisible Hinges are made in a variety of sizes, the largest being adapted for largest size door.

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And you can rely upon "Consolidated" for prompt and absolutely reliable service.

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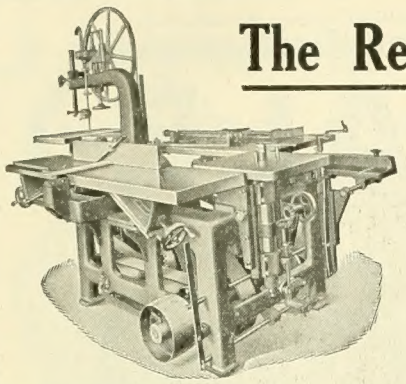

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The 1914 Model Famous "31" Universal Woodworker

actually does 31 different kinds of work

50 to 100 per cent. saved in first cost, floor space, power, installing and upkeep

New Catalogue No. 26 for 1914 is now ready for you. Shows over 50 Combination and Separate Machines for the Woodworker.

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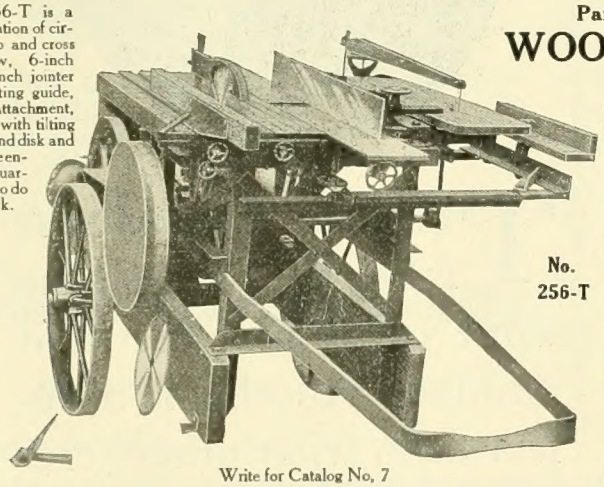
No. 256-T is a combination of circular rip and cross cut saw, 6-inch or 12-inch jointer with tilting guide, boring attachment, jig saw with tilting table, sand disk and gasolene engine guaranteed to do the work.



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WOODWORKING OUTFITS

Are the most practical—The most efficient—The most economical woodworking equipment you can buy.

Angle steel frame is the strongest structural material known.

Machines made in large quantities which allows us to sell at lowest prices and make prompt shipment.

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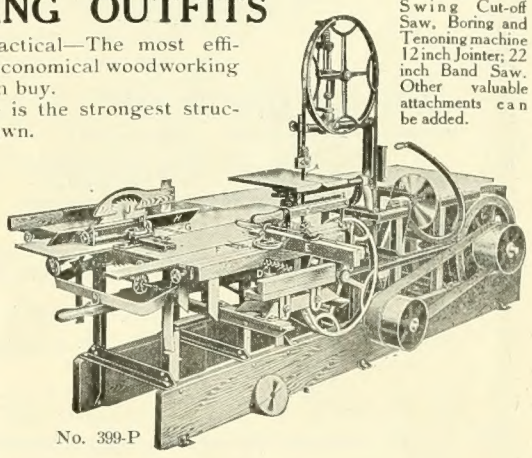

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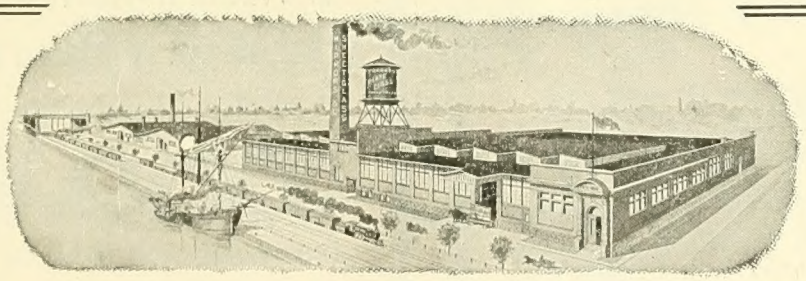

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Yale Hardware, embracing as it does over 200 different designs representing the best from all schools of ornament, gives the architect unusual advantages in getting just the right character of hardware and always at whatever price the work in hand will admit of.

We gladly co-operate with architects in working out a scheme of hardware treatment for any building, large or small, elaborate or simple.

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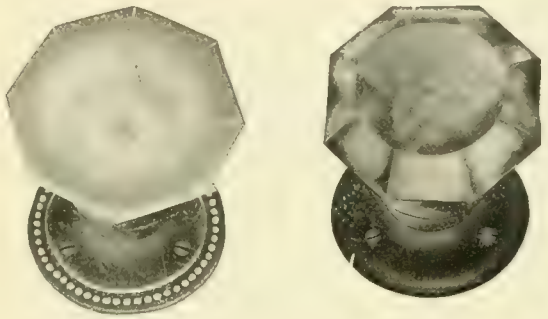
General Offices and Works: St. Catharines, Ont.

A Few of Our Line of Glass Knobs



We Manufacture an extensive line of Glass Knobs, also all kinds of High-class Builders' Hardware.

Goods Guaranteed — Prices Right.

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BELLEVILLE :: CANADA.

This building is equipped with Athey Weather Strip.

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Cloth Lined
Metal Weather STRIP

NO weather strip on the market can compare with "ATHEY" for all round excellence. The following are a few of its many outstanding features:

- ¶ **Keeps out all draughts and dirt.**
- ¶ **Absolutely dust proof.**
- ¶ **Prevents sash from rattling.**
- ¶ **The only weather strip with a cloth-lined channel in the sash.**
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Write for particulars, prices, etc.

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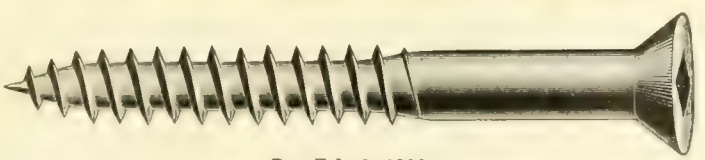
ROBERTSON SOCKET HEAD
Wood Screws



See That Square Hole

Pat. Feb. 2, 1909

THIS IS A REAL WOOD SCREW

It is driven by a simple square bit, and is the only one of its type on the market.

Driver fits snugly into the square hole and positively cannot slip and cut the fingers, or disfigure costly furniture or woodwork. It is driven with less exertion. No ragged slots after driving. Saves time, labor, money and material. We make the drivers in all suitable styles.

Drivers sent free with first order. Write for catalogue and prices.

P. L. Robertson Mfg. Co., Limited
MILTON :: ONTARIO

Toronto Housing Co., Spruce St.

Eden Smith & Son, Architects

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1,250,000 Sun Bricks supplied for eight of these buildings.

THERE'S A REASON

Sun Bricks are burned in gas kilns, giving the right range of color, hardness and density.

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Ornamental
Iron, Brass & Bronze Work
Of Every Description

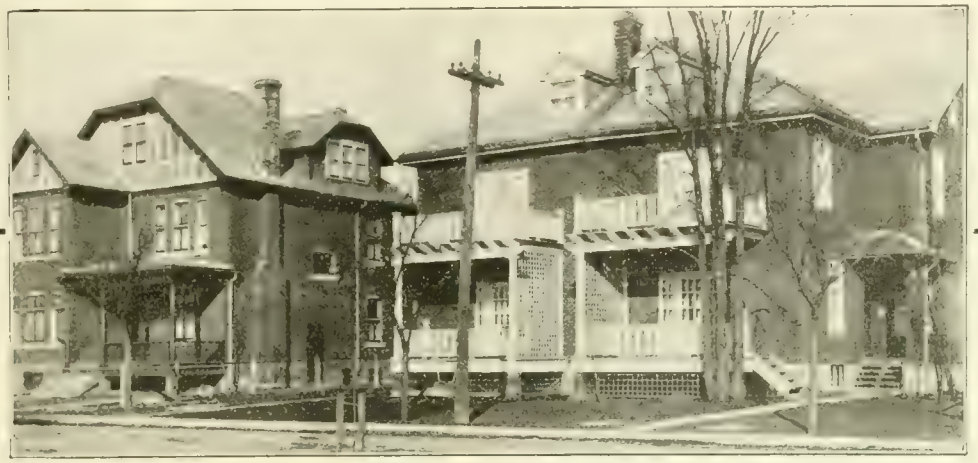
When planning your work for the Spring and Summer Building Seasons, give us the opportunity to figure on your Ornamental Iron, Brass and Bronze Work.

We can give you entire satisfaction both as to Quality of Work and Price. Following are lines upon which we would be glad to quote:

Stairs in Wrought and Cast Iron	Fences and Gates	Lamps and Brackets
Fire Escapes	Balconies	Iron Doors
Elevator Enclosures	Window Grilles	Wire Work
Marquise and Canopies	Gratings	Hammered Leaf Work
Bank Counter Screens	Light Structural Iron Work	Fire Irons, Fenders and Andirons, Etc.

Dominion Ornamental Iron Company

1195 Queen Street East, Toronto LIMITED



A Typical View in Montreal West, P.Q.

"The Town of ASBESTOSLATE"

Montreal West is the Garden Suburb of Montreal, and, as you can see from the type of houses illustrated above, it is as substantial as it is charming.

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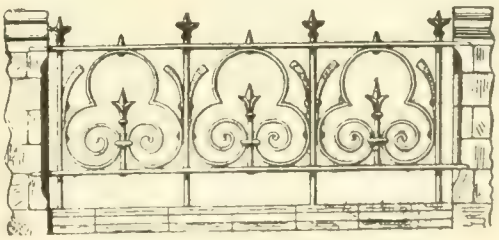

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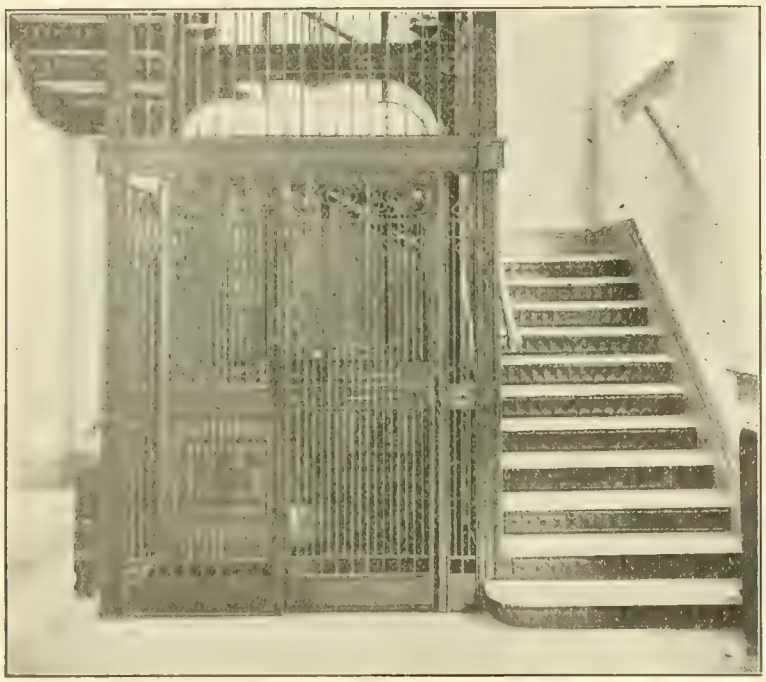

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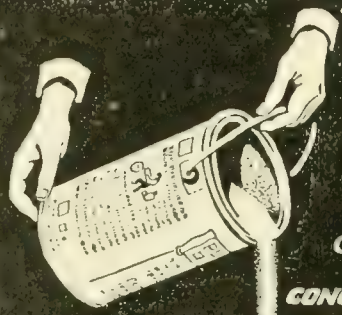

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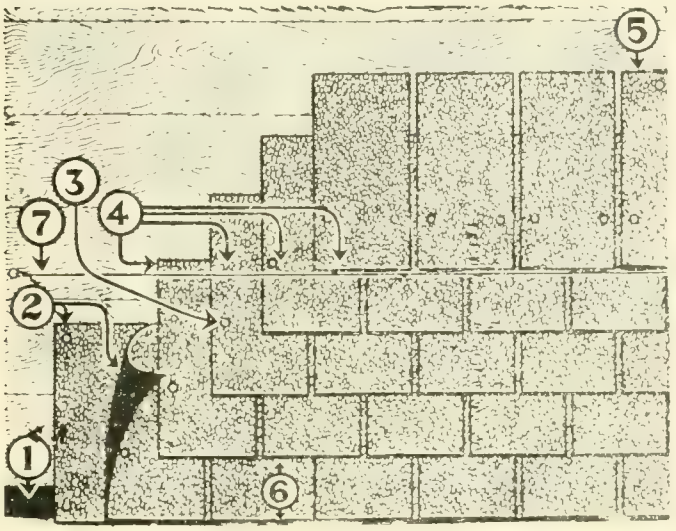

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¶ Until the Directory is extensive enough to give you what you desire, we will be glad to have readers write us for names of Architects, Patent Attorneys, Engineers, etc., whom we can recommend.

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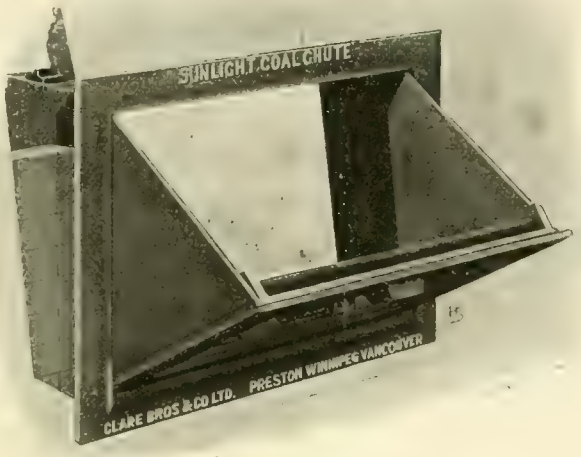

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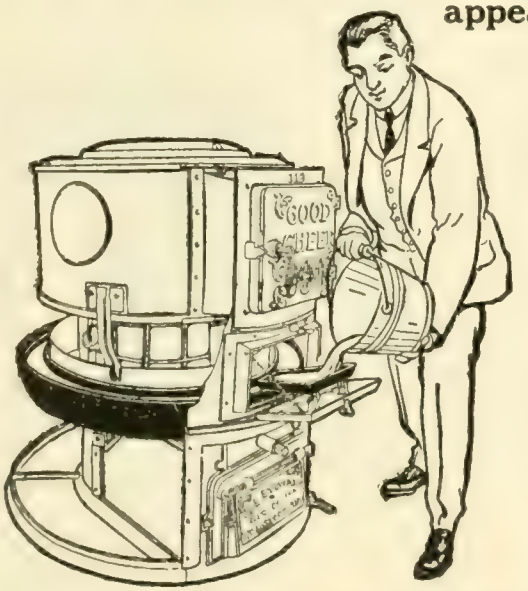

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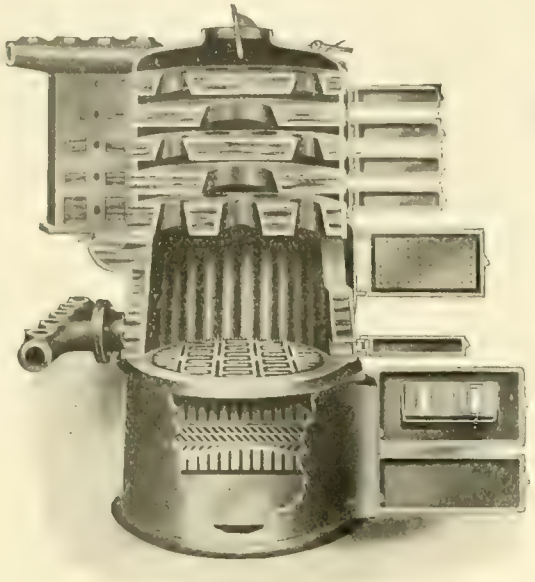

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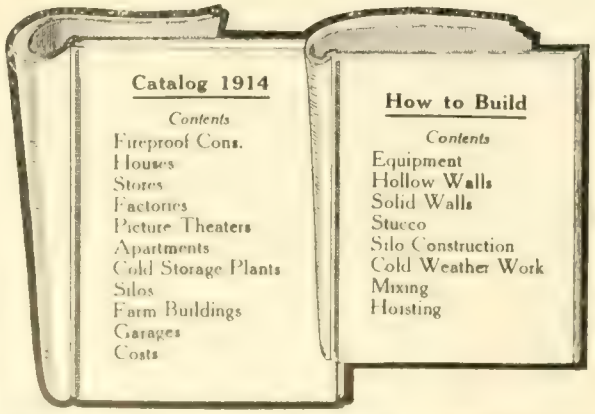

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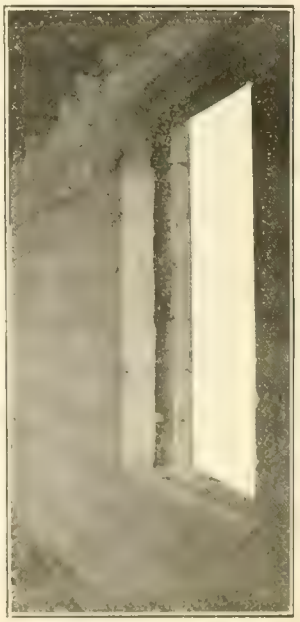

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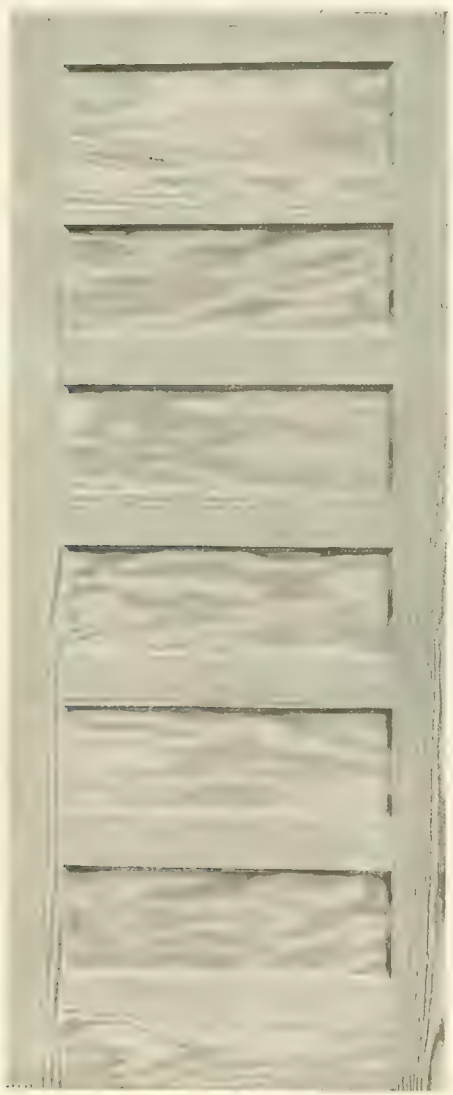

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2 ft. 4 in. x 6 ft. 6 in.
2 ft. 6 in. x 6 ft. 6 in.
2 ft. 0 in. x 6 ft. 8 in.
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Price of above doors in Clear Georgia Pine, $2.25

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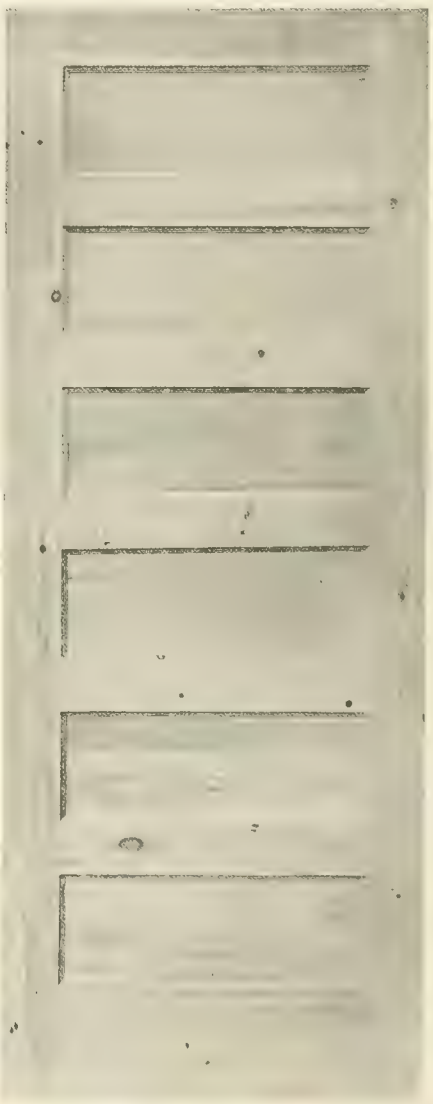

B.L. 301. Stock Pine Door

Sizes in Stock 1-in. thick

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2 ft. 0 in. x 6 ft. 6 in.
2 ft. 2 in. x 6 ft. 6 in.
2 ft. 4 in. x 6 ft. 6 in.
2 ft. 6 in. x 6 ft. 6 in.
2 ft. 0 in. x 6 ft. 8 in.
2 ft. 2 in. x 6 ft. 8 in.
2 ft. 4 in. x 6 ft. 8 in.
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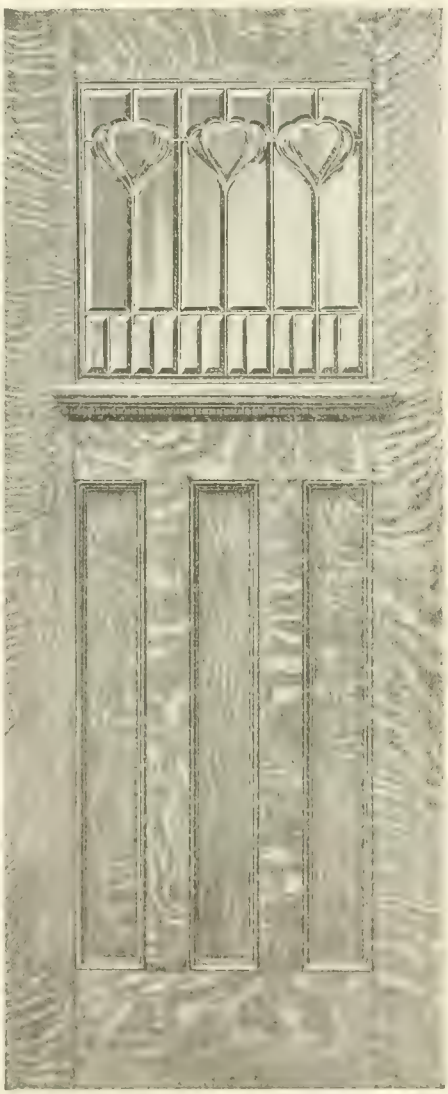
2 ft. 10 in. x 6 ft. 10 in.	1¾ in.	Price 6.25	3.75
3 ft. 0 in. x 7 ft. 0 in.	1¾ in.	Price 6.50	3.50



B.L. No. 311 ¼ Cut Oak

Sizes in Stock		¼-Cut Oak	Pine
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2 ft. 10 in. x 6 ft. 10 in.	1⅜ in.	Price 8.00	1.25
3 ft. 0 in. x 7 ft. 0 in.	1¾ in.	Price 9.00	1.50

B.L. No. [illegible] Cut Oak

Sizes in Stock		Birch or Gum	Plain Cut Oak	Quarter Cut Oak
2 ft. 10 in. x 6 ft. 10 in.	1¾ in.	$9.00	$9.00	$10.00	$11.00
[illegible]	1¾ in.	9.75	10.25	10.75	11.75

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Eight Woodworking Machines in One

No. 2 Elliot Woodworker

What the Elliot Means to You—

The installation of an Elliot Woodworker means a saving of from 20 to 35 per cent. of the labor cost. This has been proved by over 500 Canadian Contractors and Builders who use our machine. These recognize in the Elliot Portable Woodworking Machine the greatest labor and time saving machine ever invented for the building trade. The mere fact that there are in use in Toronto 300 Elliot machines to 15 of all other makes, is proof of its merits. One man can set it up ready for use in five minutes in any building, large or small, bringing the advantages of a complete woodworking plant right on the premises while the building is under course of construction. Average running cost in Toronto is about $1.00 a month.

Are You Going to Build in the Spring?

Why not put in this machine and make all your frames and sash during the slack winter months.

Did You Money Make Last Year?

We know that if you instal this machine, you will save hundreds of dollars. Do not neglect this chance, but write for Prices and Terms at once.

No. 2 Elliot Woodworker

Some of the Biggest users of the Elliot Woodworker are:

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The Elliot Woodworker, Limited

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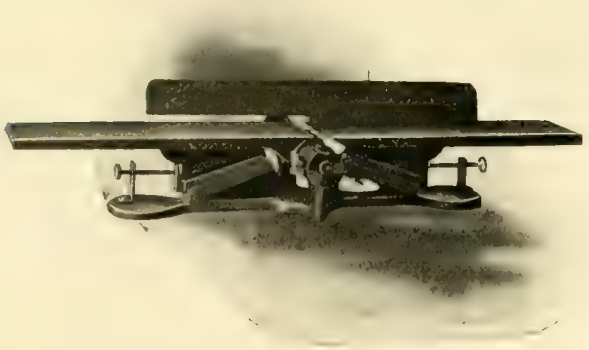
Can be run from the Woodworker or any other Power

A New Surface Sander which is specially adapted to hardwood trim. It will finish any piece of wood up to 12 inches in width. The cylinder is mounted on a pair of hanging arms with an adjustable spring which prevents the cylinder from becoming clogged by too heavy a cut. It is perfectly balanced, ensuring a perfect finish. This Sander makes a valuable adjunct to the Elliot Woodworker, as it can be run from the same motor. It can be run in a factory from any line or counter shaft.

Our New Bench Jointer is Practical

Meets a Long-felt want

This new Bench Jointer has two cutting knives, and is built to cut 6 ins. wide and ⅛ in. deep in hardwood. It can be used very profitably for edging, dressing up a small job, bevelling hand rails or casing for bay windows and many other purposes. We can equip it with special motor for use in factories or it can be run from any line or counter shaft. Write for particulars of these time and labor saving machines.



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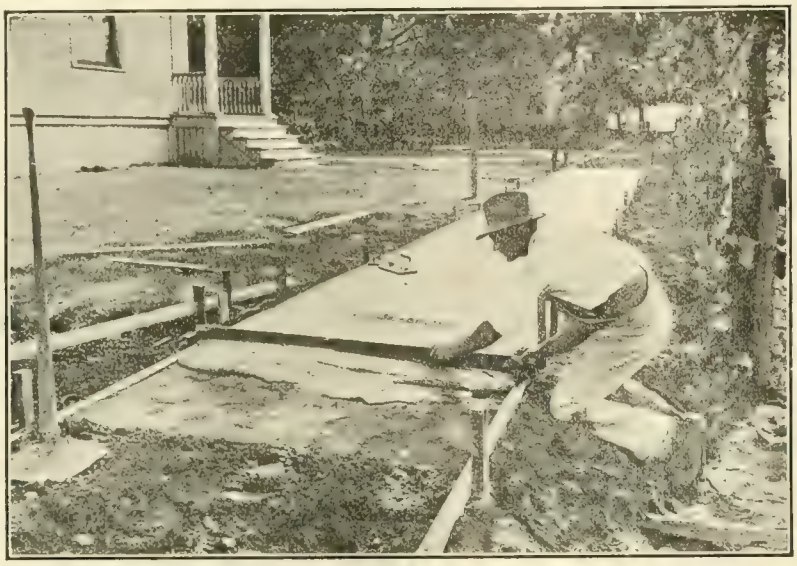

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The average householder cannot or will not do this work himself, so he naturally turns to the local contractor to do the job for him.

You can easily and profitably

Build Concrete Sidewalks

We have published a new book—CONCRETE SIDEWALK CONSTRUCTION—which every contractor should have. This book tells the whole story of sidewalk construction—the preparation of the subgrade, the selection of materials, placing the concrete into position, finishing the surface and protection of the finished work. Each step is not only fully described but is also clearly illustrated by photographs of actual work.

You can have a copy free by writing at once to

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981

View of brick bungalow erected for Henry E. Smith, Esq., Smiths Falls.

A Roomy Clinker Brick Bungalow

Architect, - - - W. J. James, Toronto
Builder, - A. G. W. McFarlane, Smiths Falls
Brick Builder, - - N. Allen, Smiths Falls
Erected for, - Henry E. Smith, Smiths Falls
Estimated Cost - - - - - $5000

By GORDON C. KEITH

THE accompanying illustrations show a clinker brick bungalow, erected for Henry E. Smith, Esq., Smiths Falls. It is of excellent design and well finished both inside and out, as a reference to the half-tones will show. A stone basement wall is built from a solid stone foundation, which also forms the floor of the basement. The clinker brick superstructure is built from the grade line. The brick for the walls and mantel were supplied by the Don Valley Brick Co., Toronto.

The house is really a semi-bungalow, as there are three large rooms upstairs, two being finished complete and one being used as a store-room. On the ground floor are seven large rooms. The following dimensions will give an idea of their size:

Kitchen, 11 x 13 ft.
Breakfast room, 9 x 13 ft.
Dining-room, 16 x 12 ft.
Living-room, 16 x 15 ft.
Reception hall,8-6 x 5 ft. 6 ins.
Bedroom at front, 9 x 13 ft.
Bathroom, 8 x 7 ft.
Central bedroom, 12 x 11 ft. 6 ins.
Bedroom at rear, 11-6 x 11 ft. 6 ins.
Verandah at front, 8 x 30 ft.

The basement has a bedroom of 7 ft. The house is heated by a hot water boiler, and the necessary wood and coal bins, etc., are located in the basement. Provision has also been made for a laundry. The floor is a natural flat rock which, on a casual inspection, looks like a level concrete floor. In fact a concrete floor, would have to be build in most other places and the walls would be built on hard pan. There is an entrance to the basement from the kitchen, and another leading to the garden at the rear of the house.

The ground floor has many interesting features. The reception hall leads to the living-room and also to the front bedroom. A coat closet has also been provided, and on the door of this is a mirror the full size of the door. A reference to the floor plan will show that a hall effect is given to the arrangement of doors leading through the various bedrooms and sub-hall leading to the bathroom which may be reached easily from the bedrooms or without passing through the bedrooms. This arrangement allows the doors to be opened and the house to be ventilated, a window in the rear bedroom permitting air to make a complete circulation through this part of the house. All the bedrooms are finished in white enamel.

All the bedrooms are amply provided with closets. The front bedroom has a closet at the back of the coat closet and in this there is a window for airing the clothes. The central bedroom closet is between it and the bathroom, and part is divided off for a linen closet, the entrance to which is from the sub-hall. The closet in the rear bedroom is underneath the stair.

The other side of the house contains the living-rooms, dining-room and kitchen. The living-room has a buff brick mantle shown in one of the accompanying half-tones. On each side of it is a high-leaded light window. There is a head-room of 9 ft. 6 ins., and there are false beam oak ceilings. The floor of the reception hall, living and dining rooms are oak.

The living-room and dining-room have the appearance of being one very large room. They are separated only by a book-case on one side and a china closet on the other. These are each 4 ft. 6 ins. high and extend out from the walls about the same distance. The leaded doors are on the living-room side. The walls in the living-room are stencilled in keeping with the general design, and the lighting fixtures are also to match the woodwork trim. The dining-room has a plate rail and is panelled.

The dining-room has a large bay window, in which is a window seat. Between the dining and breakfast rooms is a buffet opening on both sides. All the woodwork in the dining-room and living-rooms, is finished in

Living and dining room in Mr. Smith's bungalow showing arrangement of cabinets between the two rooms.

mission oak with furniture to match, while the breakfast room is finished in white enamel.

In the kitchen there is a built-in cabinet of drawers and shelves with doors. Upstairs two large rooms with a headroom of 8 ft. 6 ins. have been finished, and another large room is used as a storeroom.

The verandah across the front of the house is in keeping with the exterior of the house. The tapered pillars are of clinker brick, the same as the walls. The two chimneys are of similar construction.

Fire place built of Don Valley Brick in the house of Mr. H. E. Smith.

"Life's" Idea on the Subject of Houses

In a recent issue of Life, the well-known humorous weekly, there appeared the following remarks on the subject of "Houses," which are so characteristic of the semi-satirical point of view of that publication that we present them herewith:

"Houses are used to dot landscapes with, to pay taxes upon (if you can scrape enough money together), and to keep rainstorms, cyclones, hurricanes, mosquitoes, book agents and callers from obtruding upon you too intimately.

"Houses are composed of lath and plaster, wood, nails and mortgages. A house without a mortgage is generally owned by a man without an auto. Some houses are made from cement, which is nothing but a species of glorified mud pie.

"All houses began originally as caves and were used by primitive man. The only difference between a primitive man and modern man is in the architect's fee.

"A house is built by contractors at the instigation of an architect, who begins by the statement that it will cost as much as he says it will. Every architect to be successful, therefore, must have two accomplishments —he must be an architect and an accomplished liar.

"Houses have roofs over them to keep out the water and cellars below them to keep it in. They are usually filled with furniture, women's hats, people and unpaid bills. Sometimes they also contain servants and suffragettes—but never together."

One Way to Make Money During Winter

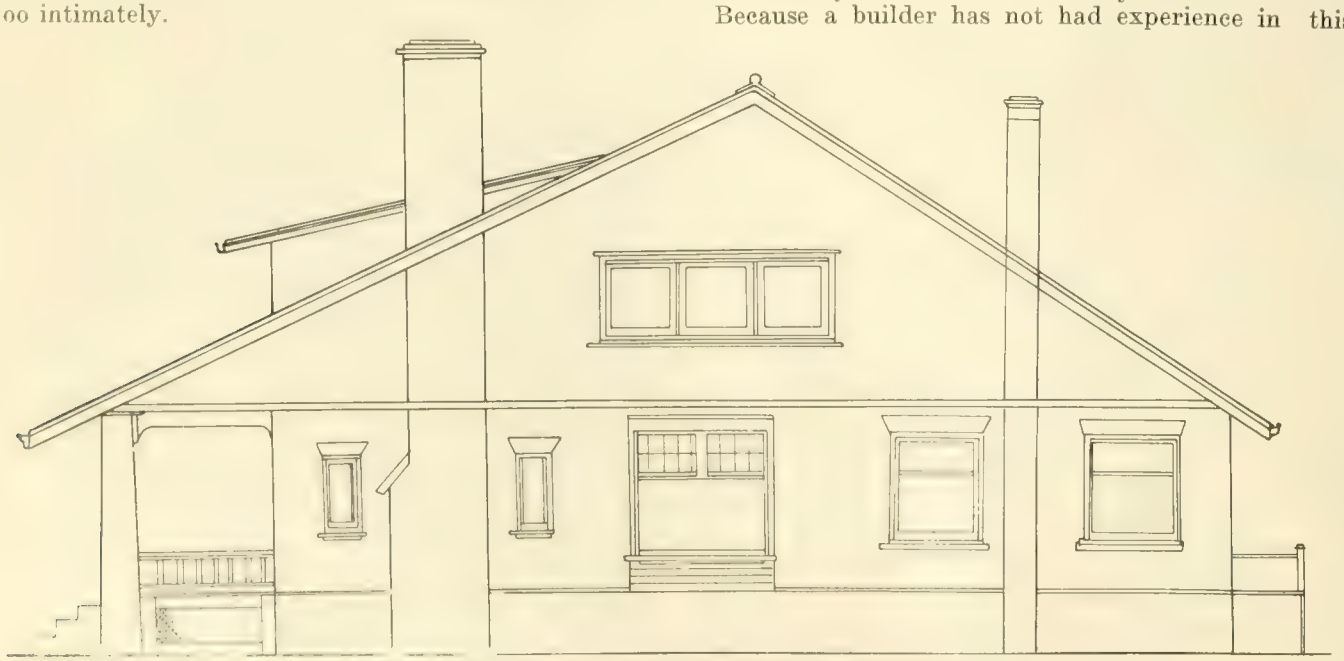
Active building operations usually end around December 1st each year, and thereafter many builders find time hanging on their hands, with little or no money coming in. The installation of steel ceilings offers a chance for the builder to make a little ready money during dull times, and a little effort along this line will prove profitable.

Owners have the time to consider and install interior improvements and the builder has the time to locate his prospects and work them up into purchasers.

Every business building, school house, lodge hall or theatre in your town that is not already equipped with steel ceilings represents a possible sale. Practically every one of the owners would be only too glad to take advantage of what you can offer, if they just knew the moderate cost of steel ceilings and what they will save.

But to get this business requires the exercise of some creative salesmanship. The prospects must be sought out and influences brought to bear, that will awaken in their minds the desire to possess and the resolve to buy. Then you are sure of the sale and have actually created business for yourself.

Because a builder has not had experience in this



Side elevation of brick house of Mr. Henry Smith, Smiths Falls, Ont.

class of work is no reason why he should pass up this opportunity. The manufacturers of steel ceilings will help in many ways. They will do the estimating; will suggest designs for any particular purpose; will make, cut and form all parts ready for instant erection and furnish plain working directions.

It is not a case of whether you can, but whether you will. The business is waiting for you to reach out and get it and make dollars out of steel ceilings.

A Well-Equipped Motion Picture Theatre

The accompanying illustration shows the Park Theatre, a moving picture house erected by Dan. A. Lochrie, on Lansdowne Avenue, Toronto.

This theatre is 200 feet deep and has a seating capacity of 1,400 persons. The height from floor to ceiling in the auditorium is 35 feet, and from stage to roof, 60 feet. The stage opening is 25 x 30 feet.

Innovations for the health and comfort of patrons include a system of ventilation whereby a constant change of fresh air is assured by the use of air shafts leading from the roof to near the floor in the auditorium, and numerous outlets at the top of the building. Ice water

The Park Theatre, Toronto

fountains are located at convenient points, with a separate glass for each person who wishes to quench his thirst.

Upholstered chairs are used throughout. The aisles are from six to eighteen inches wider than official requirements. Ladies' retiring room and gentlemen's smoking room are located at the rear of the auditorium.

The stage is equipped with all the latest appliances in the way of electrical devices, properties and scenery.

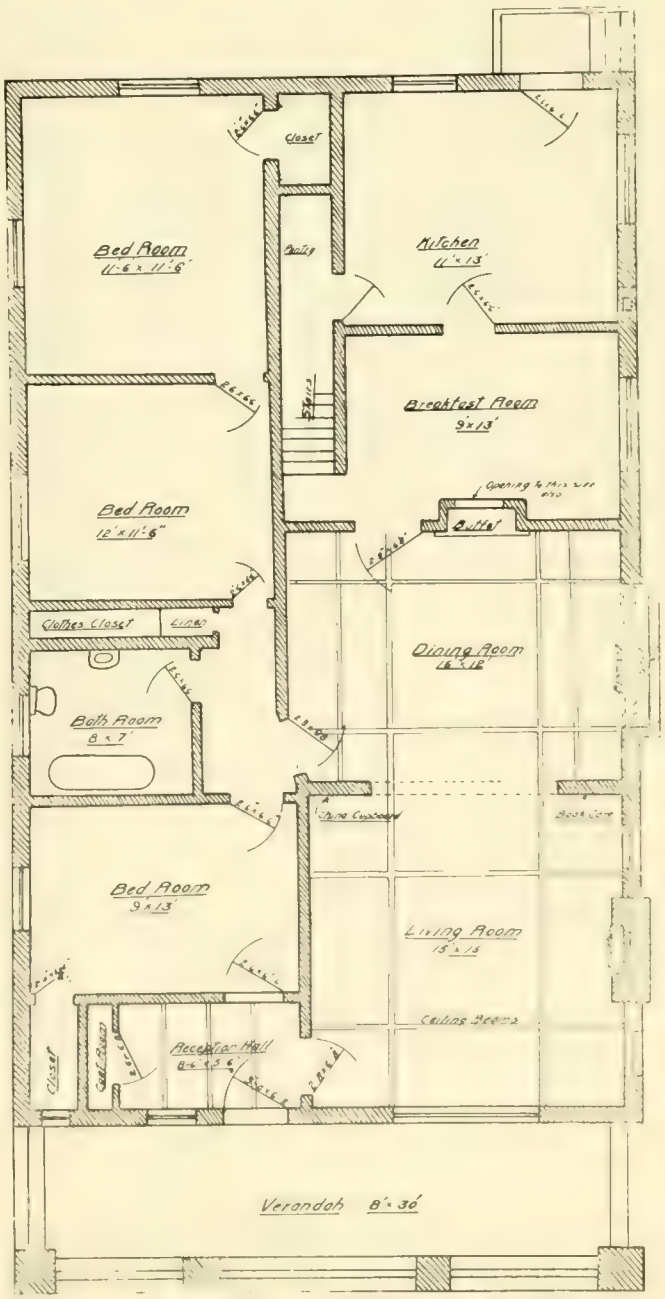
Beneath the stage is the rest room for the members of the orchestra and suites of dressing rooms for the vaudeville artists. In addition to comfortable furniture, lockers, locker dressing tables with unique electric light attachments, etc., a feature is a handsomely-appointed bathroom in connection with each dressing-room. There is also a large hall over the front entrance, which may be used for meetings, if desired.

The booth from which the moving pictures are projected is large and well ventilated and equipped with two machines of standard make and spot light.

An electrical storage system is held in reserve in the basement.

Men Who Have Succeeded

Biography is full of instances of men who have succeeded in spite of obstacles sufficient to daunt ordinary men, and it is impossible even to guess what results may follow along striving towards self-improvement. Many have been helped to success by the technical schools and institutes, but the road to success is neither short or easy. It is the men of persistent effort who achieve the most solid success. The longer a man is able to keep to his determination to know all about a single subject, the nearer does he get toward that ideal. "It has been remarked that what a man really wishes to do, that will he succeed at." Let a young man determine to be at the top of his profession, and it is more



Layout of the bungalow of Henry E. Smith, Esq. Smiths Falls, Ont.

likely than not that he will reach the goal. Let him not be discouraged at apparent failures, but remember that they have been the foundation of after success. Every effort gives the mind strength to proceed in making another.

Time and patience will aid the development of the weakest powers, and valuable results may be obtained in a direction which seemed hopeless. While the ambitious man steadily plodding onward towards the goal, he has set himself, he may be making influence in a way of which he never dreamt. There may be observers watching him who will some day require such a man as he is becoming to fill a post that will lead the quicker to the fulfilment of the ambitions. This kind of influence is the only variety that is really worth cultivating, as it has its bed-rock on that true foundation—real merit. Those in doubt or difficulty as to how to form plans that will lead to future advancement will always find help in the columns of your journal. May it always be a friend to those in need of its advice.—John MacLachlan.

Brick House Built at Contract Price of $1700

The Kingston Realty Co., Kingston, Ont., own thirteen acres of land in the east end of Kingston, where they have room for 160 houses. Here they erected last winter twelve frame cottages and 30 brick houses, the latter being shown in the accompanying illustrations. The houses front on Stevens Street and were erected during the winter months at a contract price of $1,700, the builder being J. Gold Harris, of Toronto.

The houses are of brick construction on a concrete foundation. The following dimensions give some idea of the size of the houses:

Bedrooms—9 ft. x 11 ft., 12 ft. 6 in. x 11 ft., and 9 ft. 9 in. x 11 ft.

Dining room—10 ft x 11 ft.

Living room—15 ft. 3 in. x 11 ft.

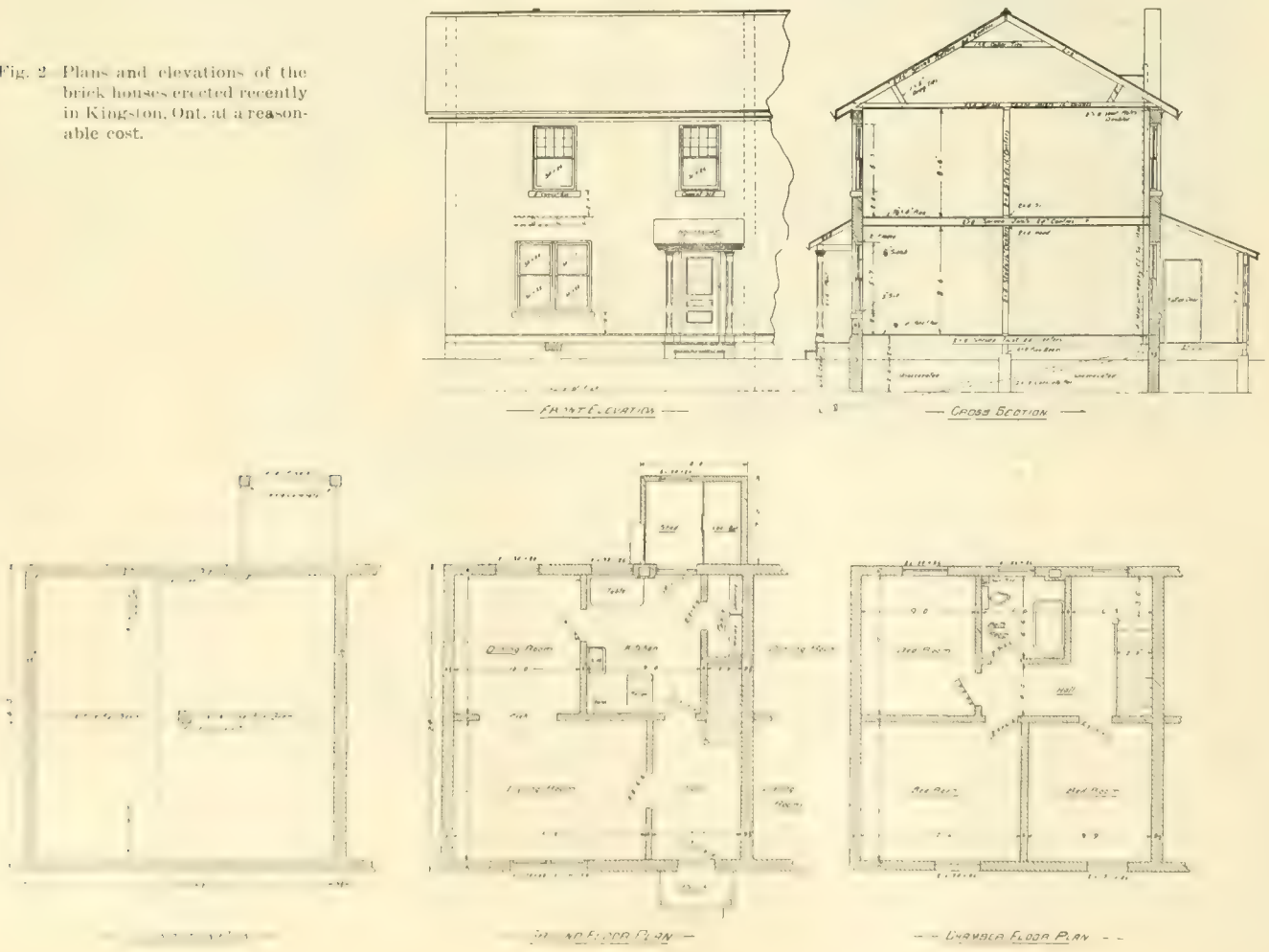
Fig. 1—House erected in Kingston last winter at a contract price of $1700 It could have been erected at less in the summer.

Kitchen—9 ft. x 11 ft.

Hall—7 ft. x 11 ft.

Both upstairs and downstairs, there is a height of 8 ft. 6 in. from floor to ceiling.

Fig. 2—Plans and elevations of the brick houses erected recently in Kingston, Ont. at a reasonable cost.



Book-keeping Methods for the Contractor and Builder

EVERY builder and contractor should keep an accurate set of books. In looking into the systems of several men who are engaged in building trades, I find many who have adopted up-to-date methods, and others to whom the suggestions contained in this article might be of some benefit.

To be content to go along in a haphazard manner, paying for goods when the invoice comes in and keeping no record of where said goods were used, outside of a note made in some out-of-the-way place is to court disaster.

Not infrequently we run across a man who is content to keep track of a job in something after this manner: When a contract is secured an entry is made in a common note-book, "John Smith's job." Under this are placed from time to time, as goods are purchased or wages paid, entries which read "Carpentry work, $50.00; nails, $2.00; cement, $10.00; lumber, $100.00; brick, $150.00; mason work, $75.00; and so on down until the job is finished, and there are a hundred and one entries made. Then when a cheque or mortgage is received to apply against the job, a note is made in some other book, and there is more or less of a hunt when it is desired to refer to the matter at a later date.

Certainly, this method is better than none at all, but it is a crude one, indeed, and paves the way for numerous errors to occur. When the job is finished and it is desired to find how much the carpentry or mason work cost, it means a lot of work to go through all the entries in the so-called cost journal and pick out the items to be charged against either one of these branches of the work. Ten chances to one, an entry or two will be overlooked, the balance will not come out right and all the entries must be gone over again.

There are many methods of bookkeeping, but the underlying principles are the same, and one method may be applied in several cases, with, of course, the necessary alterations.

An Accurate but Simple System

For the man who is in the building business in more or less of a small way, and whose affairs do not warrant him keeping a man to do bookkeeping exclusively, all the books required are a debit and credit ledger, a cash book and a cost journal. The loose-leaf system is best, and may be purchased from office supply firms or from firms who specialize in this line.

A good form to adopt for a cost journal is that used by a certain Canadian builder, and which is shown herewith. For a ledger, the usual style, with debit and credit sides will do. The cash book also must have debit and credit sides for money received and for that paid out. A bills-receivable book is not necessary; when a note is received, an entry can be made on the credit side of the cash book with the word "note, 30 days" after, thus "John Smith, (30 day note)." The items in the cash book should be pasted into the ledger at least once a week.

Cost Journal Gives Accurate Record of Expenditure.

As soon as a contract is secured, accounts are opened in the cost journal and the ledger. Make a note of the contract price in the ledger. As money is spent on material, say lumber, an entry is made in the cost journal as shown in the form accompanying this article. When a carpenter's time sheet is turned in, the amount shown thereon is entered in the column for carpentry work in the section marked "Labor." In the case of labor it is optional whether or not a note is made in the column for "Particulars," although, perhaps, it is better that such be done. The same thing, of course, is followed out in the case of mason work, concrete, etc.

When a sub-contract is let, for instance plumbing, enter the items as shown in the cost journal and also open an account in the ledger, entering up on the one side the amount of the contract and on the other the amount of money paid on account from time to time.

In the column for "Returns and Rebates" is posted the amount of material that is left over after the job is completed or material that is taken away while the work is in progress.

When the work is finished, the total amounts spent for material and labor in the various branches are carried out into the column for that purpose, the whole

TIME SHEET

PHONE 123 **JOHN JONES, Contractor** **PETERBOROUGH, Ont**

Fortnight ending..... 191.. Name..... .....Address..... .....

Job Work Done On—	Hours per day												Total
	Sat.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Mon.	Tues.	Wed.	Thur.	Fri.	
JOB No. 1.....	4	8											12
JOB No. 2			8	8	8								24
JOB No. 3 . .						8	4	8	8				28
JOB No. 4 . .										8	8	8	24
													88

Rate per hour : Total hours

$ c.

added together, the rebates deducted and you have the total cost of the job. This is posted in the ledger and the difference between that amount and the contract price is the profit (or loss) on the work.

A Good Form of Time Sheet.

A form of time sheet this will well suit a contractor is shown herewith. With this the employer can keep track of where his men are working. He can either use numbers for the jobs or refer to them as "Smith's Job," or "Jones' Job." When a carpenter or bricklayer hands in his time sheet at the end of the fortnight, the cost of the labor spent on the various jobs is entered against those jobs in the cost journal.

A new pay sheet for the following two weeks is put in the mechanic's pay envelope.

"The Ambitious Craftsman"

Some years ago I read a book, the title of it was, "What man has done man can do." It has been an inspiration to myself, and to encourage the ambitious craftsman, I give a few points and hints that may help them to press forward. It is not an uncommon experience to meet with working men who declare that self-improvement does not count. The present age has, they argue, so reduced the scope of work carried out by each person, that all that remains can be done with the exercise of a comparatively small amount of mechanical skill.

Of course even this demands a certain amount of intellectual capacity, but it does not exact the same acuteness of imagination, and the same degree of alertness as were required when the scope of work that each had to do was considerably wider. But however well-founded the objection to self-improvement and education may be with regard to the lower position, it loses its force as the ladder of advancement is mounted until, in the highest position, the pay is made entirely for brains.

Too many young men do not appear to think it worth while to cultivate brains to apply in their work. Under present industrial conditions it is often possible for a young man of very limited education and experience to be making just as comfortable a living as a man of infinitely wider knowledge. Consequently, when the idea of full wages has been reach the excitement to improvement flies. Any one who has had to deal much with members of the building trades, knows how true this is, and also knows that many wake up when the best part of their life is past, and indulge in vain and bitter regret at their neglect to cultivate their opportunities. Of course there must always be the hewers of wood and drawers of water, or there would be no need for foremen, managers and men whose duty it is to make the best use of labor.

No young man ought to think he cannot improve his position by patient endeavor. His efforts may not command immediate success, and perhaps may never meet with the reward they deserve but he will at all events be a better man for having made the endeavor.

A Poser for the Orator

An open-air orator once received this poser:

"I tell you, gentlemen," he exclaimed "and the experience of a lifetime confirms my statement—that if you want a thing well done you must do it yourself."

"How about getting your hair cut?" asked a man in the crowd.

Contract No. .....

Cost Journal

Owner's Name .....

Address .....

W. S. WALKER, Toronto

Architect .....

Location .....

Sheet No. .....

Date for Completion .....

Date	Particulars	Invoice No. Folio	Mason Work		Reinforced Concrete		Plastering		Carpenter Work		Sub-Contracts		Miscellaneous				Total Costs		Returns and Rebates	
			Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Dr.	Cr.	Material	Labor
Jan. 27	Jones Lumber Co.								50.00											
9	Baxter & Lester (Plumbing)										125.00	37.44								

Brick Houses of a Type in Demand by Workmen

By Wm. H. Burkhard

Type A.—Two-family house erected by a Chicago firm of realty dealers.

TWO real estate firms in Chicago have erected on their properties over 400 workmen's homes of the types shown in the accompanying illustrations. The demand for these was so great that the same firms are preparing to erect 100 more in the spring of this year.

The houses are one-flat and two-family dwellings, and sold for $3,300 and $4,500 respectively. This price includes the lot, which is listed at $500.

These houses are solid brick, have asphalt shingled roofs, and complete plumbing and combination gas and electric lighting. They have been built of the best classes of materials that enter into the construction of dwellings of this type, and are not "skin-built" in any particular. The floor plan shown is of dwelling Type A, which is the two-flat, ten-room house that sells for $4,500. The floor plan of Type B, which is a one flat, five-room dwelling, is the same as the first floor plan of Type A, the two-flat house. The analyzed cost of one of the two-flat homes run as follows:

Excavation	$ 22	Painting	150
Cement work (foundation, basement, walks)	345	Hardware	130
Brick (face and common)	830	Electric wiring	76
Lumber (including fence in yard)	550	Gas fixtures	45
Plumbing (sewerage and gasfitting)	460	Glass	59
Millwork	405	Asphalt shingles (roof)	70
Plastering and lathing	308	Carpenter work and other labor	550
		Lot (30x127)	500
		Total cost	$4,500

The houses are built on 30 foot lots. Each of them has a spacious and airy cement basement.

In type A, there is installed a two-family laundry tub in the basement, and in type B, in the cellar is a well-equipped tub for one-family use. Modern bath-rooms are one of the features of both dwellings.

In type A are two bath-rooms, one on each floor. Type B has one bath-room, located on the first floor. Both types of houses have the same kind of interior, oak finish.

The dining-room and parlor of each dwelling is oak-floored, while the kitchen, bedrooms and bath-rooms are laid in maple. An artistic china closet graces the dining-room.

Each kitchen is fully equipped with modern plumbing features, including an A-1 hot water tank.

Stove heat is used in most of these houses, but furnaces have been installed in some instances at the expense of the home buyers, the cost of the installation being very low.

Type B, which comfortably houses one family, is built somewhat on the cottage plan. In its design, both interior and exterior, it is pleasing to the eye. It has a well-built and roomy back porch with one flight of stairs that descends to the basement. Like Type A, it is built with twelve-inch brick walls, and with cement chimney.

The itemized cost of building a Type B brick dwelling runs in a few things parallel to the listed cost of

Type B—One family house.

Type A. Here, however, are the itemized expenses for building the Type B dwelling:

Front elevation of Chicago houses.

Excavation	$ 22	Painting	75
Cement (foundation, basement, all walks)	326	Hardware	70
Brick (face and common)	726	Electric wiring	42
Lumber (including fence in yard)	420	Gas fixtures	28
Millwork	218	Glass	46
Plumbing (sewerage, gas-fitting)	276	Asphalt shingles (roof)	67
Plastering and lathing	154	Carpenter work and extra labor	300
		Lot (30x127)	500
		Total cost	$3,300

It must be stated that the cost figures given for both types of dwellings allowed of a nice profit for the builders.

*The illustrations published are by courtesy of Brick and Clay Record, Chicago.

Suggested Scheme of Government Labor Bureaus for Canada

Miss E. St. John Wileman, of Calgary, Alta., is putting up a big fight for the establishment of a public system of government free labor bureaus throughout Canada.

To aid her campaign, the following resolution has been framed, and will be presented to Hon. R. L. Borden at an early date :

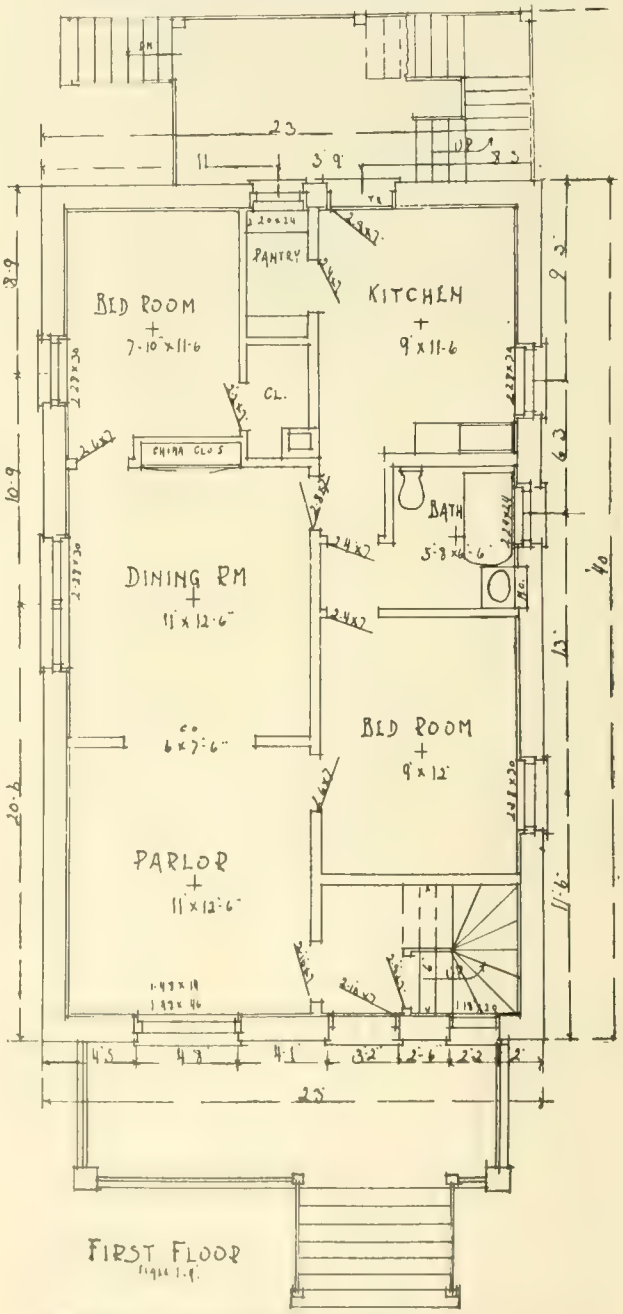
"In view of the existence of a public system of Government free labor bureaus in Great Britain, New Zealand, Australia, States of the U. S. A., Germany, Spain and other civilized countries, be it resolved as eminently desirable that the Federal Government be asked to establish a similar system without delay for the Dominion of Canada."

The resolution already has been passed by the following organizations :

The Alberta Legislature in Committee, The Associated Boards of Trade for the west, The Affiliated Boards of Trade for East British Columbia, The Affiliated Boards of Trade for West British Columbia, The Union of Alberta Municipalities, the Union of Saskatchewan Municipalities. The Lumber Merchants' Association for the West, The Retail Clerks' Association of the West, The Calgary Builders' Exchange, The Calgary Board of Trade (2 endorsements), The Toronto Board of Trade.

Messrs. Davidson & Morley of Winnipeg are bringing the resolution up at the meeting of the Western Division of the C.N.A.B.E. They state it will pass unanimously. Eight other organizations have taken up the subject.

Miss Wileman states that Government labor bureaus are established for the use of employers seeking work-



Floor plans of houses erected by Chicago real estate men.

people, and for all classes of workers, men, women, girls and boys, who are seeking employment, and that they exist in Great Britain, Australia, New Zealand, Germany, Spain, the U. S. A., and other countries.

The main objects of the bureaus are : To bring the employer and employee into touch with one another with the minimum of delay; To operate as a clearing

house for labor; To keep in touch with employers of labor throughout the country by communication with municipal authorities, boards of trade, farmers' societies, labor unions and manufacturers' associations; During the winter months, when there is unavoidable increase in the number of unemployed, to secure the co-operation of various provinces, municipalities, boards of trade, and other organizations, and interchange frequent information and reports as to labor conditions; The protection of labor of all kinds from imposition and injustice; To furnish proper information as to current rates of wages, and to provide application forms for the use of employers and employees; By careful continuous records to classify the workers and separate the steady, industrious laborer from the shiftless, drunkard and degenerate; To furnish information of a reliable nature to Great Britain as to what class of labor is required in the various localities at different times, and to check surplus labor from coming in.

It is to be distinctly understood there is nothing in the nature of charity in the working of the bureaus; cases of sickness or destitution, are dealt with by charitable institutions.

How such a scheme would be worked out, the officers that would be appointed and the methods showing how the unemployed would be looked after, are given at great length in the petition.

Furnace Rules Applied with Judgment

While there are but a few builders who personally install the furnaces in the houses they erect, it is sometimes a puzzle to know what size furnace to put in in order to get best results. Even though he does not do the work himself, it is just as well that the builder should know how it is done in order that he may see that the furnace man who does do the work, does it right.

Writing in Metal Worker, a contributor tells of the rules he follows in order to determine the size of the furnace to install. He says :

I consider that 1 sq. ft. of hot-water radiation is about equal to 1 sq. in. of area in the warm-air pipe from a furnace under favorable conditions, but I never use less than an 8-in. pipe for the first floor room or less than a 7-in. pipe for a second floor room. I use for checking up my work the John H. Mills rule of 2, 20 and 200, which means that I use 1 sq. in. area for every 2 sq. ft. of glass surface, 1 sq. in. of area for every 20 sq. ft. of wall surface and 1 sq. in. for every 200 cu. ft. of space. This rule is intended for apportioning hot water radiation to the work and I apply it to the warm-air pipes.

Another short rule I use is as follows:

Divide the cubic contents of the building by 30 and the glass exposed by 3; add these two results together and the answer will be the square inches of area in the warm-air pipe that will be required for heating the room. In figuring the sizes of pipes for a small job I generally use this short rule and make a few corrections according to the length of the pipe and the exposure of the room. I always remember that a long pipe must be larger than a short pipe to do the same amount of heating and that north rooms require more heat than south rooms.

When figuring the sizes of pipe for larger houses I write generally use both rules and then use a little judgment, or perhaps it should be called guesswork, but I always make sure to have the pipe large enough. I never try to heat a large room on the second floor with one pipe flattened to an oval 4 in. deep. I either use two big pipes to the room or have the partition made thick enough to allow a suitable riser.

After figuring all the sizes of the warm-air pipes required I add them together to determine the size of the furnace required, for it seems to me that that is the only way to rate a furnace, to state the amount of air it will heat.

Stone Roof for Modern Foundry

A notable feature of the new South works, or foundry, of the J. I. Case Threshing Machine Company, Racine, Wis., is the roofing. This is made of asbestos and Trinidad Lake asphalt, two of the most enduring mineral substances in existence. The asbestos is made into a felt, layers of which are cemented together with the asphalt. The combination of these two materials produces a roofing that is literally a sheet of pliable stone.

Because of its all-mineral composition, this roofing cannot rot, rust nor deteriorate, hence it never requires painting or any other form of coating. It is also said that this roofing is proof against the action of chemical fumes, and that sparks and burning brands have no effect on it. Hundreds of cases are on record in which it has for years withstood a continuous shower of sparks from stacks and cupolas.

The roofing was manufactured by the H. W. Johns-Manville Co., Toronto.

What's the Object of This?

Kas-so Kitch-e-mon-e-too So-ne-ah, Limited, is the name of a firm recently incorporated to manufacture and deal in building supplies of all kinds. The concern is capitalized at $50,000 and has its head office in Montreal, Que. John E. Balmer and Wm. G. Taylor, Montreal, are the incorporators.

It is hard to see what can be the idea of a firm who would adopt such a name as this. Builders will wonder when they see the name, and then laugh. It's certain he can never remember it after seeing it but once, and what man is going to spend five or ten minutes in studying over a firm's name in order that he may pronounce it without stuttering or whistling? Then, too, if a man ever started to do business with the firm, he would have to keep their stationery before him in order to get the correct spelling. When he came to make out a cheque or address an envelope, the name would take up more space than is usually allotted on an envelope or cheque.

The construction of a $50,000 calcining plant for the Iona Gypsum Company is to be commenced at once on the property of the company about one and one-half miles from Iona Station, N.B., and on the shores of the Bras d'Or Lakes. The gypsum deposit of the Iona Gypsum Company is estimated to contain 25,000,000 tons of 98 per cent. plaster rock which will be reduced and mixed at the plant and will be shipped from the company's wharf adjacent to the property. The plant, when completed, will have a capacity of 1,400 barrels of mixed plaster per day and will be disposed of in the upper Canadian and American coast markets. Provision has been made for expansion as the demands of the market increase. The company is capitalized at $100,000.

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Editorial Comment

Better Housing in Canada.

The first annual report of the Toronto Housing Co. has been issued from the office of the Provincial Secretary, Parliament Bldgs., Toronto. It offers a suggestion for the erection of better houses for workmen, which Canadian builders should study, and bring them to the attention of the civic authorities.

In the foreword, Hon. W. J. Hanna calls upon Canadians to do more to banish the slums, and the note struck by the Provincial Secretary of Ontario should be heeded by every centre of population in Canada. The old countries are trying to eliminate slums, but it is easier to prevent than to remove them.

But better housing has a far wider application than the slum problem. It means better living conditions for the great masses of wage-earners, and will bring with it a toning up of our whole social and industrial system. Enabling legislation will be necessary in every province. In Ontario a beginning has been made, and the results obtained under an act passed in 1913, would indicate that the Toronto Housing Co. are on the right track.

Every Canadian workman of steady habits should be able to own his home. The advantage is as much to the State as to the individual, for the home must always be the starting point for strengthening and elevating the social conscience and the national life.

* * * *

Important Principles Underlying the Legislature.

When the Ontario Legislature was approached regarding a housing law, the bill which was framed up, received the united support of both parties. This bill provided a way by which all the cities and towns of Ontario may, to a large extent, solve the problem of providing houses at moderate cost for their people.

The following important principles underlie this legislation :—

1. The first of these is that where private initiative fails to provide an adequate supply of a pressing necessity the Government, as representing the whole of the people, should and will lend its assistance to supply the need.

2. The principle of encouraging the voluntary co-operation of citizens with the Government in the solution of social problems.

3. The desirability of leaving the administration of such enterprises in the hands of specially constituted bodies.

4. In undertakings which by their nature create a value which is the direct result of Government co-operation such value (after providing for the repayment with interest of the private capital employed) shall belong to and be employed for the benefit of those co-operating. In the case of our Housing Company, the co-operators, outside of those supplying the capital, are the city, through its guarantee of the bonds, and the occupants of our houses.

These substantially were the principles Mr. Hanna required should be embodied in the Act, if the Government were to lend its encouragement and assistance to housing enterprises. The result is that no legislation could be better adapted to meet the present situation in Ontario than that recently passed by the Legislature.

* * * *

First Steps In Promotion of the Work.

Very shortly after the passing of this legislation the City Council of Toronto, by a practically unanimous vote, authorized the gurantee of bonds to the value of $850,000, for the purposes of the company upon the basis of $150,000 being provided by the company. A few days later this by-law received the approval of the Provincial Board of Health. The vote of Toronto ratepayers was therefore not required. Shares to the value of $100,000 only have as yet been subscribed for, so that $50,000 additional must be provided to entitle the Housing Company to the full amount authorized by the Council. Various plans have since been put into effect, and many families are now enjoying cheap rent in the houses erected by the company. When the work under way is carried out many new city and suburban homes will have been provided for the workingmen of Toronto.

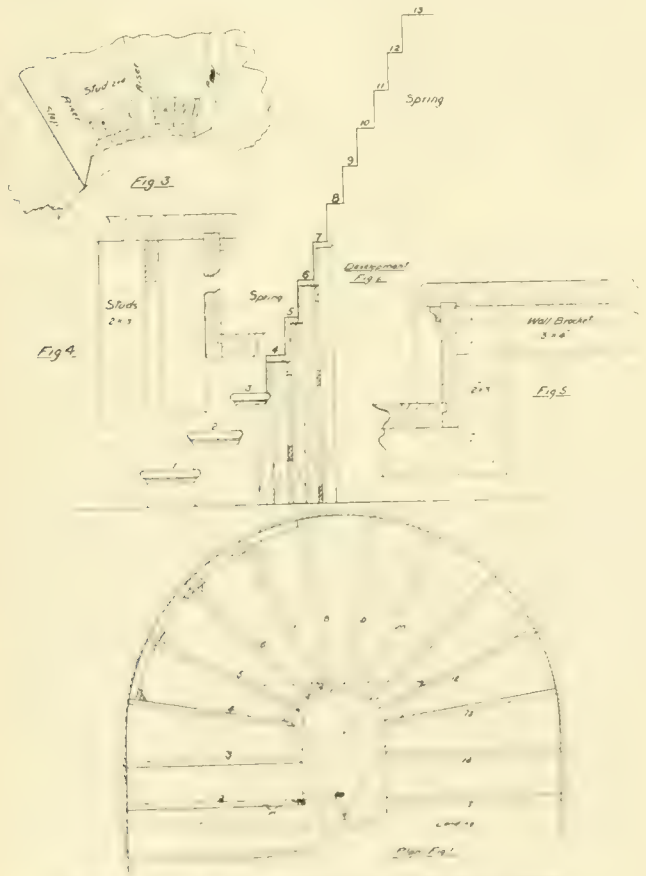
Interest in this scheme has been Dominion wide, as is shown by the number of inquiries being received, not only from Ontario but from the other Provinces as well. The result has been the organization of houses in many other centres.

The Secretary has addressed many meetings in various Provinces, Canadian Clubs and other gatherings of interested people. He has shown a great personal interest in the scheme, which has had a great deal to do with the success of the scheme in Toronto. There is no reason, however, why the scheme couldn't be carried into effect in every town and city in Canada where more houses are required. All it requires is the co-operation of the people interested in the erection of better housing.

Carpentry and Woodworking

Fifth Series on Stair Building

The stair shown in the accompanying illustration was erected by the writer a few years ago, and a few practical ideas, will, I am sure, help some other one, who may at some time have a similar stair to build. The first thing to do is to set the plan out to full size on floor, when it will give the positions of the risers, and the



Fifth of a series on stair building by John MacLachlan.

height from floor to floor will give the number of steps required in this case. No. 15 is the landing.

Fig. 1. shows plan of stair, circular at back and at well. The end of these steps next well are supported by beams 3″ x 4″, fitted to concave side of wall; placed in a horizontal position and well plugged to wall, keeping them to right height; also 2″ x 3″ pieces placed vertical—to suit risers. The narrow ends of steps are to be supported by upright pieces or (studs) 2 ″ x 4 and filling in pieces to suit width of steps as shown in Fig. 2.

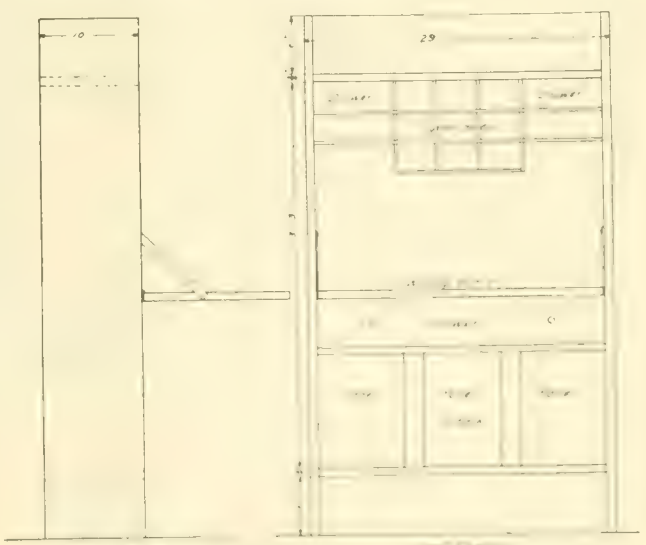
In the case of the steps they should be built,—each one complete in itself, riser and step well block at back. The blocks can be fixed on wall, and the studs for open end, to position shown on plan, Fig. 1. When all are ready then begin at top and work downwards. In doing so a better chance is had in fixing steps to risers. The inside of well is finished with ½″ groved and tongued lining about 1½″ wide mitered to risers as shown in an enlarged drawing, Fig. 3. Fig. 5. is section of step next wall, and Fig. 4. is section at wall.

Note. Handrail for this stair appeared in September issue, 1913.—John MacLachlan.

Materials Required for Writing Desk

The accompanying drawing shows a writing desk which I find is very convenient. The following list of stock is required for it :—

Side pieces, ¾ x 10 x 52 in.
Top and bottom shelves (2 pieces), ¾ x 10 x 34 in.
Middle shelves (2 pieces), ¾ x 9⅝ x 30.
Drawer supports, ¾ x 2½ x 30.
Drawer support, ¾ x 2 x 6.
Lid piece, ¾ x 15 x 29½.
Back (3 pieces), ⅜ x 10 x 41.
Back (2 pieces), ⅜ x 2 x 40.
Desk drawer (front piece), ¾ x 5 x 29⅝.
(side piece), ⅝ x 5 x 10.
(back piece), ⅜ x 5 x 29.
(bottom), ⅜ x 5 x 29.
Stock for pigeon hole (vertical, 2 pieces), ¼ x 8 x 14.
(vertical, 12 pieces), ¼ x 8 x 3½.

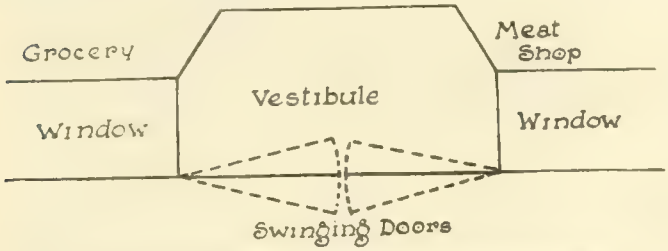


Details of a desk which may be easily made by a carpenter in his spare time.

(horizontal, 3 pieces), ¼ x 8 x 29.
Drawer for pigeon holes (front 2 pieces), ⅜ x 3 x 8½.
(sides, 4 pieces), ¼ x 3 x 8.
(backs, 2 pieces), ¼ x 3 x 8.
(bottom, 2 pieces), ¼ x 3 x 8.

Excellent Arrangement of Store Entrance

The accompanying illustration shows the store entrance of Garner Bros., St. Catharines. The swinging doors are used in the winter and the vestibule is a place where snow may be removed from the clothes before



Sketch showing the arrangement of the entrance to the store of Garner Bros., St. Catharines, Ont.

entering the store. At the same time both windows are open to inspection from the vestibule.

There are two doors from the vestibule, one opening to the grocery department, and one to the meat shop. The whole arrangement is an excellent one, which should appeal to both builders and merchants.

Raising Barn Bents

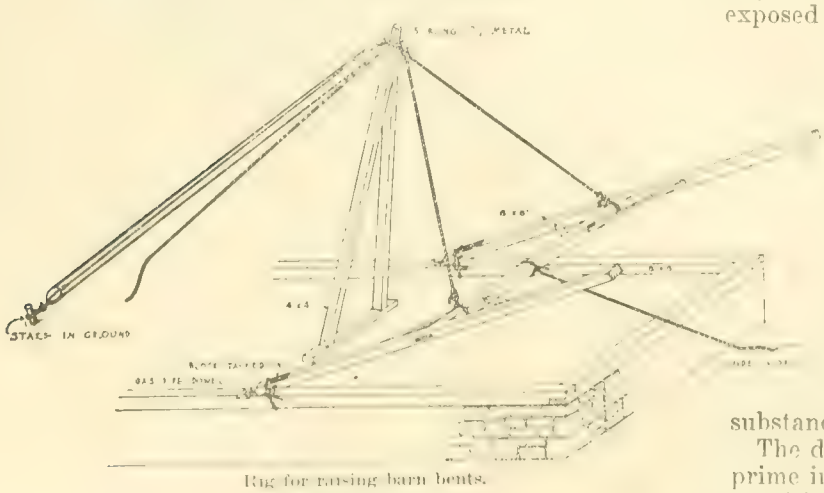
The accompanying illustration shows one of the best methods for raising a gambrel roof on a barn of 40 ft. span. This method is the one most commonly used by barn builders.

The raising apparatus consists of a heavy iron ring and hook, the ring made of ¾-inch round iron and the hook of 1-inch iron. This is to slip over the top of the raising jack or derrick. A convenient size for the ring is from 5 to 6½ inches in diameter.

The raising jack is made of 4 x 4-inch timbers. This should be built long enough to raise the barn frame to an angle of about 45 degrees before the ring slips off the end of the derrick.

A two or three-pulley tackle is preferred for this derrick, using a ¾-inch rope, or which approximately 150-foot length is required.

This method can apply to gambrel roof trusses or to



Rig for raising barn bents.

an ordinary square barn bent. The method of procedure would be the same in either case. The two important things to look out for are to have the feet of the truss fastened so that they cannot slip forward when the raising begins; also take care to have a strong guide rope properly attached, which will hold the frame in a vertical position, and not allow it to fall forward.—American Carpenter & Builder.

Reducing the "Working" of Wood by Kiln Drying

A great source of annoyance to all woodworkers and users is the tendency of the material to shrink and swell with changes in atmospheric conditions. This is due to the fact that wood substance is hygroscopic—this is, it attracts or absorbs moisture from the air. Increase in the moisture content of fairly dry wood causes it to swell, and drying out causes it to shrink. This property of wood can be reduced, but not entirely eliminated, by subjecting wood to boiling, steaming, prolonged soaking, or exposure to high temperature.

To determine just what effect kiln-drying has on the subsequent moisture condition of wood as compared with simple air-seasoning, a number of tests were conducted by the Forest Service in co-operation with the Yale Forest School. The test specimens were of two sizes, 2x 2 x 6 inches and 2 x 1½ x 30 inches. Three sets of seven pieces each were taken for each of three species, and for each of the different temperatures used. One set was simply air-dried and used as a check (C) with which to compare the other two sets of that series. Another set (A) was first air-dried for about a year, then kiln-dried, and finally placed aside with the check specimens to air for a year or more. The third set (B) of the series was soaked from the green condition for the same length of time that the other sets were air-dried, was then kiln-dried with the second set and placed in the air with the others. The airing took place in the open under a shed on the north side of a building where they were protected from sun and rain. The comparative tests were all made at the same time which adds to the reliability of the results.

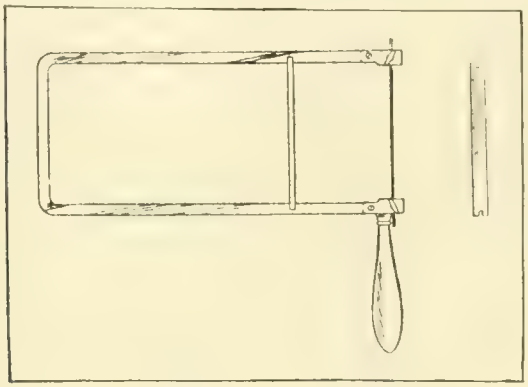
A comparison of the water content of the pieces that were kiln-dried first with that of the pieces that were only air-dried showed that in no case did the kiln-dried material absorb as much moisture as the other.

For example, air-dried and water soaked red oak blocks were kiln-dried at maximum temperatures of 145 deg., 170 deg., 212 deg., and 274 deg. They were then exposed to the air for a year or more and their average moisture content at the end of that time determined. The results were as follows: At 145 deg., previously air-dried (A), 7.6 per cent; previously soaked (B), 9.6 per cent.; check specimen, air-dried only (C), 12.4 per cent. Similarly for the other temperatures the figures were: At 170 deg., (A) 10.6, (B) 10.6, (C) 12.4; at 212 deg., (A) 9.4, (B) 9.5, (C) 12.0; at 274 deg., (A) 8.9, (B) 9.9, (C) 12.6. From these figures, each of which is an average of seven tests, the reduction in hygroscopicity due to kiln-drying appears to be a permanent change by some fundamental change in the wood substance.

The degree of dryness attained, when strength is of prime importance, should not exceed that at which the wood is likely to remain in use, but where reduction of the hygroscopic properties of wood are of first consideration it should be carried to as great a degree as possible and subsequently brought back to the condition under which the wood is to be used by exposure to the air for some time before the lumber is manufactured.

A Scroll Saw Fixed to Cut Metal

Carpenters quite frequently have to saw through metal. A simple device for stiffening a hand scroll saw so that copper and brass may be cut with it without breaking saw blades is shown herewith. A notch



Scroll saw fixed to saw metal.

is cut in each end of a strip of wood, just long enough to fit tightly in the saw frame, as shown. The tension of the saw blade can be varied by changing the location of the strip of wood.—Popular Mechanics.

The Question Box

We have received a number of inquiries recently, which are printed herewith. Readers of The Canadian Builder & Carpenter are requested to send in replies to one or all of them. Kindly give number of question when answering. We shall be glad to publish any questions regarding building topics in this column with a request for replies. Your name will be withheld if

Double drive shed erected for J. W. Bryans, grocer, Havelock, for the convenience of customers. Carpenters could "drum up" considerable of this class of work, especially in the smaller places.

you desire it. We hope we are deluged with replies. All published replies will be paid for at regular rates. Editors. The Canadian Builder & Carpenter, 32 Colborne street, Toronto.

* * *

1. Does ivy injure buildings?—Toronto.

* * *

2. Blue Prints. Will any contributor favor me with a simple and effective method of taking blue prints, stating what kind of paper is required for printing on also. Kind of paper original drawing must be on for copying.—Zero.

* * *

3. Gothic Niche. Will some reader kindly say where I can obtain details or scale drawings of a fifteenth century Gothic niche, early perpendicular with projection canopy—.Draughtsman.

* * *

4. Roofing. Can any reader describe the best method employed by carpenters in obtaining the measurements of hip and valley rafters.—Carpenter.

* * *

5. Music Rack. Will any brother reader be kind enough to send a sketch for a music rack to be made in oak.—Constant Reader.

* * *

6. Wood Carving. I am thinking of starting to learn wood carving, and would be glad of any advice on the subject; also of tools required, and I can procure a good book which commences with the elementary stages of the art.—Carver, Toronto.

* * *

7. Arch. Would some practical reader tell me the best way to strike a four centre arch.—Young Spread.

* * *

8. Organ Stool. I should like a sketch of organ stool with seat to open with carved legs.—Thistle.

* * * *

9. Kitchen Cabinets. I should be much obliged for details sketch of kitchen cabinets, to be made in clear pine.—Spare Time.

Double Drive Shed

The double drive shed was erected for W. J. Bryans, Havelock, Ont., for the convenience of his customers. The first double shed cost about $65. It is 28 feet long and 14 feet deep and will accommodate four teams. It proved so valuable in attracting customers, and became overcrowded so much, that another shed of the same size was built. The cost of the last shed figured out at $71.00. Following shows the cost in detail :—

Timber for framework	$12.00
Lumber	18.00
Roofing	20.00
Cost of erection	20.00
Nails	1.00
Total cost	$71.00

Although the two sheds cost $136 altogether, Mr. Bryans considers it a good investment in the fact that it brings customers around to the store. A good many patrons appreciate it, as is shown by the comments on its great convenience that are heard, not infrequently. It has been the means of attracting a number of new customers to the store. In fact, there is an instance of one man who made use of it and bought his goods elsewhere. The inevitable came at last, however—the farmer dropped in one day and made a small purchase, and on account of its convenience has become a steady patron. Customers have got in the habit of tying up their horses, and coming into the store through the back door—making themselves right at home, and of course this is a good thing in binding them closer to the store. Carpenters could use this instance in persuading a store-keeper to have sheds built convenient to his store. Of course, they would be used most where there is considerable country trade.

Problem in Hand Railing

To the Editor : Will you kindly answer the enclosed problem. This is about my first problem in hand railing, and you can see what I am up against. I would like to know : 1. Is my method of curving the steps right to get the rail in one pitch, or will it have to be in two pitches—the lower rise being 7½ inches and the upper consisting of two steps, 5½ inches ? 2. The bevel to twist the wreath.

If my method is right to get the pitch lines, I can easily develop the face mould; but I want to know what bevels and how to apply them to twist the wreath. —B. C. Fawell, Meritton, Ont.

From Mr. Fawell's letter and sketches he submitted, which are shown in the accompanying Figs. 1, 2 and 3, I conclude that he would like to be enlightened regarding the best method to develop the tangents over and above the plan curve of 6 inches radius at the top of the stairway. His method to curve the steps 15 and 16 seems to be all right; but why reduce the two top risers to 5½ inches, while all the other risers are 7½ inches? There is nothing short of absolute necessity that will justify such a difference in the size of the risers; not so much because it alters the pitch of the rail, but rather the annoyance and danger it will cause in the stepping.

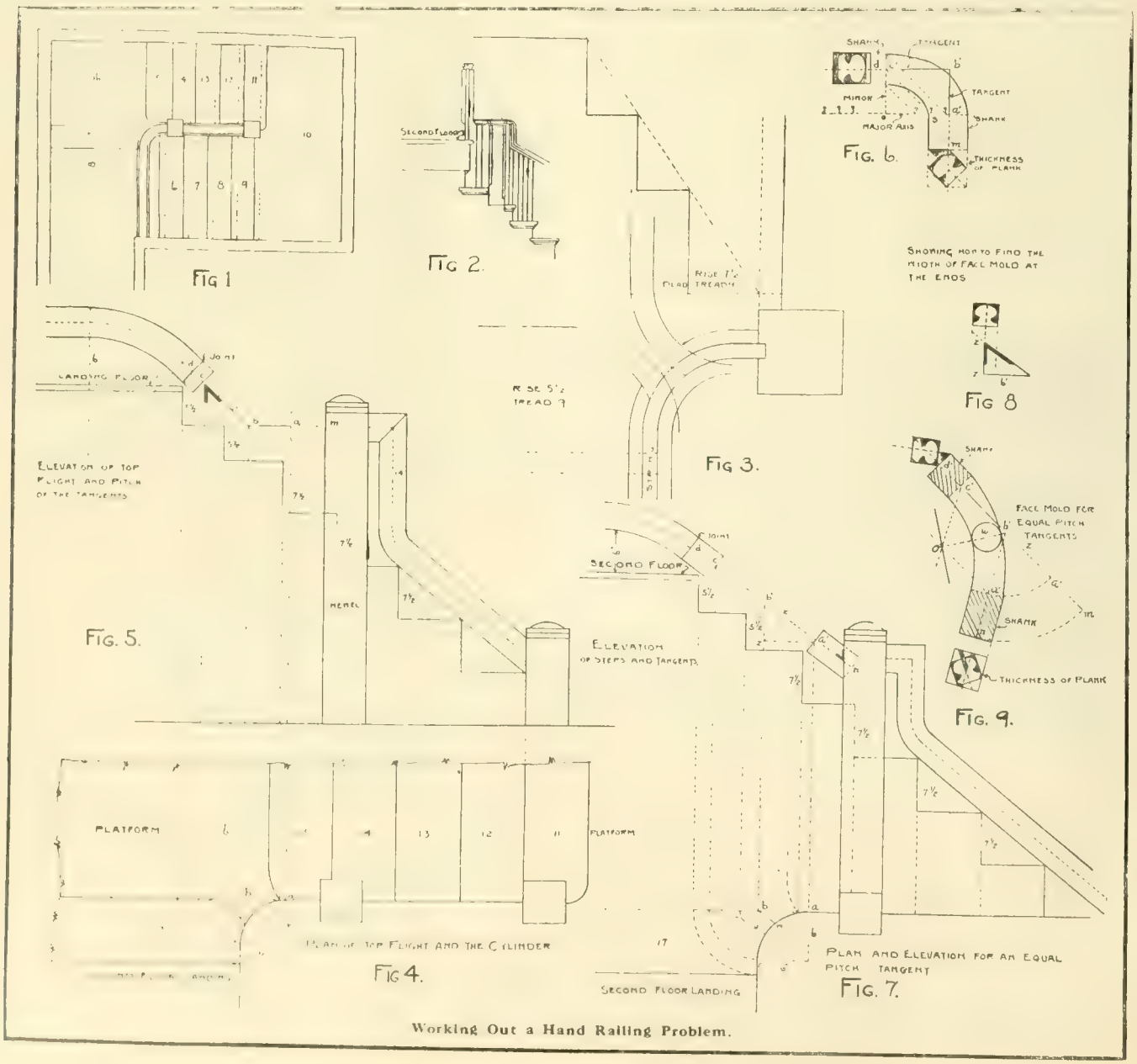
If Mr. Fawell will pay careful attention to the following figures and explanation, he will find all the knowledge he needs pertaining to the development of the face mould tangent and bevels.

Figures 4 and 5 represent the plan and elevation of the top flight and the cylinder. In Fig. 4 the plan tangents a b and c d are shown unfolded, and in Fig. 5 they are shown developed over and above the steps; where the tangent a' b' is shown to be a level tangent aligning with the knee of the gooseneck; and the tangent b' c' is shown inclined to meet the easement in the landing rail, which stands 6 inches above the landing floor.

These developed tangents indicate the exact length of the face mould tangents.

In Fig. 6 it is shown how to use them in the development of the face mould. The tangent a' b' is here shown at right angle to the tangent b' c,' which is the rule in every case where one tangent is level and the other inclined.

From a' draw the line a' o parallel to b' c' and from



Working Out a Hand Railing Problem.

o draw a line to c' parallel to a' b'. These two lines represent the major and minor axis of the face mould curves.

To find upon the major where to fix the pins, take in the compasses the length of the tangent c' b'; fix one point in c' and turn around to cut the major in s; connect c' s; draw parallel lines from the minor, cutting the major as indicated where the pins are shown.

The width of the mould at the end c' will be the same as of the plain rail and at the end a' it is determined by the bevel as shown from c' in Fig. 5 along its long edge to 2.

For this kind of a rail there need be but one bevel and as shown at c', in Fig. 5, it is formed by the pitch of the tangent c' b', and it is to be applied to the end a' of the rail, as shown at m in Fig. 6.

No bevel is required at the end c' because c' is upon the minor axis.

Mr. Fawell will observe that the arrangement, as indicated in these figures, will meet the conditions presented by him in his elevation, Fig. 2.

In the following Figs. 7, 8 and 9 it is shown how to construct the rail over the cylinder to meet the conditions shown in his elevation, Fig. 3.

The developed tangents a' b' and b' c', as shown above the cylinder steps in Fig. 7, are equally inclined. The face mould for this arrangement of tangents is shown in Fig. 9; the line d, c, b, z, a, m in this figure is a duplicate of the pitched tangents as shown in Fig. 7 by the same reference letters.

To draw the face mould, place the length of the tangent b' c' in the compasses; fix one point in c' and turn around to o; again place the point in b' and turn around to intersect in o; connect o c'. From b draw a line to a parallel to c' o and also a line from a to o parallel to b' c'; now connect b' o; which will be the minor axis; the major is drawn square to the minor through the point o, as shown.

From b' draw b' w along the minor; draw the circle equal in diameter to the width of the plain rail, which also will be the width of the mould at this point; make the mould at the ends a' and c' the same as shown at z in Fig. 8 along the long edge of the bevel.

The bevel is found as shown in Fig. 8 at the top angle of a triangle composed of a 6-inch base to equal the radius of the plan curve and an altitude to equal the line z z, shown in Fig. 7. One bevel only is required in this construction also, and that because the two tangents are equally inclined. But because the tangents do incline, the bevel is to be applied to the two ends of the wreath and for the same reason (equal tangents) they are to be applied reversely, as shown in Fig. 9. Morris Williams, in American Carpenter and Builder.

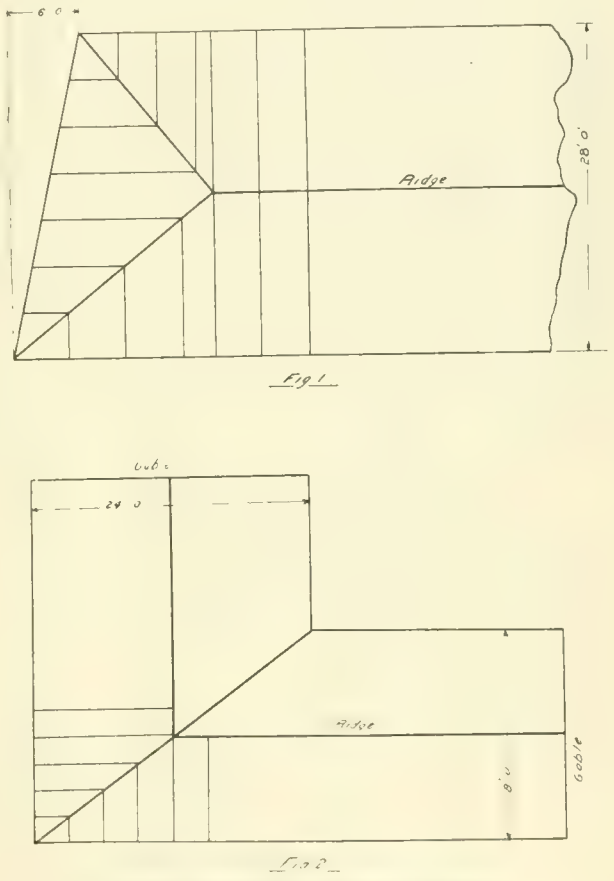
How to Find the Length of Hip Rafters

In your issue for December, on page forty-four, you print an item, headed "How to find the length of Hip rafters," and advise the seeker after knowledge to "take its run for one foot, which is always seventeen on the tongue of the square, and the rise given the common rafter on the blade." Now apart from the fact that you have reversed the square, from the way usually handled, and that the ordinary square is only 16" long on the tongue, the most noteworthy thing about that item is that word "always," which should not have been there, because the run for a hip or valley rafter is not always 17". That is the case only when the pitch on both sides of the hip or valley is the same, and while that is the case, more often than otherwise, it is not always the case, also the rule for getting the side bevel of the hip is open to the same objection. It is only applicable in some cases. Take either of the sketches below and try and frame your hip according to your rule.

Fig. 1 shows a square pitch or 12 rise to 12 run, supposed to be a building built to street line which is not square with side line of lot.

Fig. 2 is an ordinary L-shaped house having two gables of unequal width and the ridges carried even, say 8 ft. above the wall plate.

These sketches may perhaps give you an idea of what



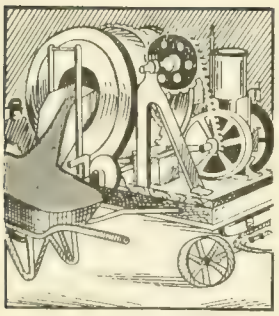
Two views illustrating the science of framing.

I am driving at, in the science of framing. There is no such thing as "always 17." There is always that "right angled triangle," and circumstances alone determine what it may be on the square—Robt. Sutherland.

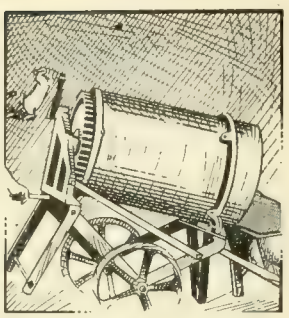
Success in Business

"Success," declares Louis D. Brandeis, "must be sought in business in excellence of performance; and in business, excellence of performance manifests itself, among other things, in the advancing of methods and processes; in the improvement of products; in more perfect organization, eliminating friction as well as waste; in bettering the conditions of the workingmen, developing their faculties and promoting their happiness; and in the establishment of right relations with customers and with the community."

Mr. Neil Gillies, formerly of Brett, Gillies & Noyes, Toronto and Montreal, has been appointed Toronto manager of the Master Builders' Company, with offices at 2 Berti Street.



Concrete Department



Small Fireproof Garages

To keep the automobile safely and in the most efficient order and to preserve its appearance, there should be provided a permanent, fireproof garage. Concrete is the most suitable material for this purpose. A concrete building is warm in winter and cool in summer —very important considerations for the motorist who likes to "tinker" on his machine—and its fireproof qualities are self-evident and of the utmost importance where gasoline is so freely used.

The garage should not be planned of too small dimensions. It is desirable to provide space for a work bench fitted with a good machinist's vise and rack for tools, and allowance made for room to store oil, gasoline, extra tires and other supplies. For a single car a size of 18 feet long by 14 feet wide by 9 feet high (inside measurements) will be ample.

Method of Construction

The foundations should be 12 inches wide by 3 feet deep and should extend 5 inches above ground level to provide for a concrete floor of this thickness. The concrete for the foundation should be made in the proportion of 1 part Portland cement to 2½ parts sand to 5 parts screened gravel or crushed rock. Upon the foundations the 6-inch wall will be placed. Make the walls of 1 to 4 concrete. The walls are reinforced with ⅜-inch round steel rods, spaced 14 inches apart, and running both horizontally and vertically. The forms for the walls can be built the full height, or movable forms of a height of about 3 feet can be used. Forms are made of 1-inch siding, well supported by 2 x 4 lumber to prevent bulging when concrete is placed. The movable forms are filled and raised each day until the entire 9 feet is completed. In order that the car can be easily run in and out of the garage, it is well to leave the entire entrance side open and fitted with large swinging doors. In the sides of the doorway imbed bolts with heads in the concrete. These bolts will be used later for fastening the wooden door jamb which carries the hinges for the doors. Provide a good sized window in each of the three walls so that there will be plenty of light on the car when it is to be repaired or washed.

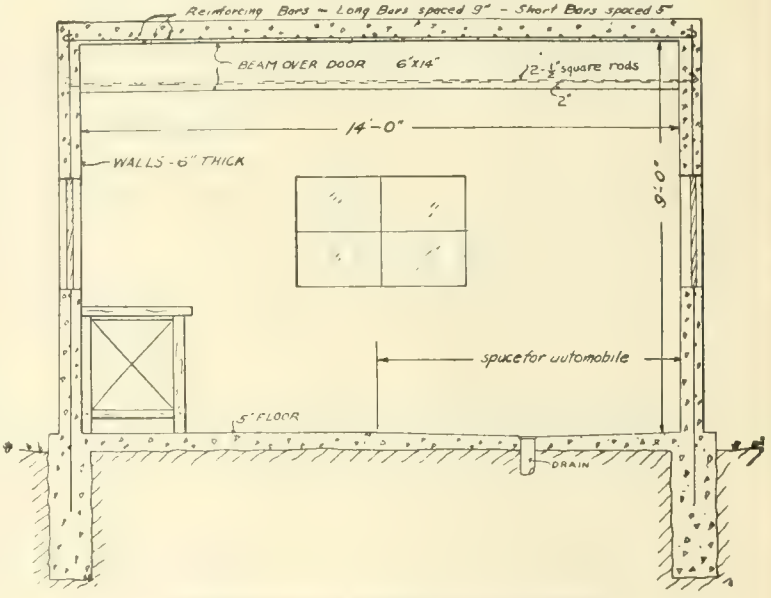


Fig 2.—Section of a monolithic concrete garage.

The concrete floor will be 5 inches thick, made of 1 to 2½ to 5 concrete, and rests directly on the ground. The ground should be scraped and well rolled or tamped to secure a good foundation for the floor, which is laid after the walls are finished. Where the car will stand the floor should be sloped to a drain at the center to carry off the water used in washing. If running water is obtainable the pipes should be laid before the foundation and floor are started. It is a good plan to provide for an underground gasoline storage tank with a pump extending up through the concrete floor.

The roof can be made either peaked or flat. The flat form is much easier for the average person to build. Such a roof should be constructed with a slope of about 4 inches toward the back of the building to drain off water. Make the roof 6 inches thick, of 1:2:4 concrete, and reinforced with ⅜-inch round steel rods spaced 5 inches apart for the short lengths and 9 inches for the long lengths. These rods are located 1 inch from the bottom of the roof. Where the rods cross, wire them together to prevent shifting when the concrete is placed. Over the doorway, where there is no wall to support the roof, the weight is carried by a concrete beam 6 inches wide by 14 inches deep including the thickness of the roof. Both beam and roof are built at the same time. Two inches from the bottom

Fig. 1—A simple concrete garage.

of the beam place two ½-inch square twisted steel rods. The form for the roof consists of a flat platform of 1-inch boards on joists supported by upright studding. Be sure that the forms are strongly made and well supported so as to safely hold the weight of the wet concrete. This form should remain in place for a week or two after placing the concrete.

Make provision through the roof for a concrete chimney or sheet iron smoke pipe for a small coal or gas stove. The garage should be heated in winter to prevent freezing of the water in the cylinders and radiator of the car.

Materials Needed

For a garage of the size given there will be required: 38½ barrels of Portland cement, 12 cubic yards sand and 24 cubic yards stone or gravel.

Process of Steam Curing Hollow Concrete Walls

A method of steam curing hollow concrete walls was illustrated in the erection of a concrete dairy building recently by a Boston company of milk dealers. Late in the summer, this company lost, by fire, one of their small plants, and it was decided to replace it with concrete buildings, these being considered to be very satisfactory from the viewpoints of sanitation and insulation. It was decided to purchase hollow wall machines from the Van Guilder Hollow Wall Co., 710 Chamber of Commerce Bld., Rochester, N.Y., as these machines, being light, could be cheaply transported to any other locality or to any of their other plants where they desired to erect buildings. Their simple operation, too, permitted the use of local labor.

The construction in this case was two 4″ walls, separated by an air space of 2½″ for insulation purposes. This double construction is desirable wherever a high degree of insulation from heat and cold is required, and it also effectually prevents dampness. The rebuilding was delayed for various reasons until after the first of November, and as the plant was located almost at the base of the White Mountains, the builders were considerably perplexed as to how to keep the walls from freezing, and as to whether they would set fast enough to allow continuous work with the wall machines.

Methods of Drying Walls

The buildings consisted of an ice-house 30 x 45 ft., with 19 ft. walls, a creamery 41 x 30 ft., and a receiving shed 13 x 15 ft., with 12 ft. walls, and there was a large exposed area to be protected. There was a boiler on the premises that had been in the burned creamery, and this suggested that steam might be turned into the continuous air space and the walls steam cured. Plenty of old pipe was at hand and lines were run so as to reach every part of the building by means of steam hose connected to the walls. As fast as built, the walls were covered with strips of tar paper, weighted with boards and steam turned on, with the result that the concrete set in about three hours so as to allow another course to be laid. It was past danger of freezing in six hours. The entire walls were erected in three weeks. The thermometer went as low as 20 degrees, and there was at one time four inches of snow.

This offers a solution of the problem of how to protect and cure double concrete walls in cold weather, and of how the season for the construction of this type of buildings may be extended several months at low cost.

Beauty and Sentiment in Concrete

There is a story told of how a house owner decorated the concrete floor of the patio or courtyard by impressing therein while it was green, branches of plants growing in the garden. The cement finishers on the work were somewhat dubious when they were instructed to pat down and trowel in the arching foliage, but when they found that they could take it out easily, leaving the delicate impression of the branch they became enthusiastic about it and carried the design as a border around the courtyard.

Along a similar line is the practice followed by another home-builder, who hit upon a unique idea when

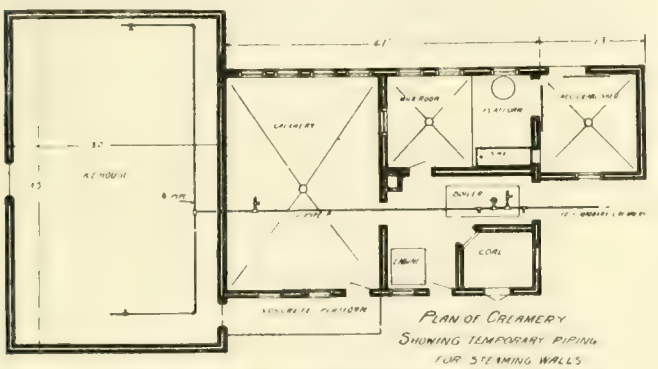
Ice house, creamery and receiving sheds of hollow concrete walls made on machines supplied by the Van Guilder Hollow Wall Co., 710 Chamber of Commerce Bldg., Rochester, N.Y.

he caused his little son, a good many years ago, to make the impression of his hands in the wet concrete of the walk before his door. This was done in 1887, but the outlines of the little hands are perfectly clear to-day and will remain as a pleasant souvenir of the boy's play days. It is just such touches of sentiment as this that make the difference between a house and a home, and always concrete is the material.

Spraying Freshly Made Concrete Blocks to Produce a Nice Finish

As to the use of a spray in removing the film of cement and disclosing the quality of the facing material in the manufacture of concrete block, I give our method as follows :

Immediately upon removing the block from the machine, place it where there will be a good light on the face and spray it, using a fine vapor spray, such as is used in spraying fruit trees. The outlet holes in such sprays are about the size of an ordinary pin and for the best results should be used in connection with a water



Plan of ice house, creamery and receiving room.

pressure of 40 lbs. or more. This spray nozzle attached to a length of ½-in. hose is all the extra equipment needed, and the spraying is a very simple operation which, with a little practice, can be done effectively by any intelligent laborer. The object and the effect of the spraying are as follows: It is well known that one of the greatest objections to the ordinary cement block has been, and is, its dull, lifeless appearance. No matter what kind or color of sand or crushed stone is used for facing, a certain amount of cement adheres to each grain, hiding the natural color and giving to the block the color of the cement used. White sand will give a lighter effect than dark sand, but in either case the entire surface is one color, dull and for many uses, unattractive.

Our process is to give a mottled effect, exactly the same as in fine, high-grade granite, where you see the black mica set off by the white or light gray of the quartz crystal in which it is imbedded. The originator of the process described had for years the idea of spraying a green concrete block to wash the cement from the particles of sand, before it had had an opportunity to set, thereby accomplishing three things in one simple operation. First, to expose the color of the sand; second, to give to a semi-dry facing mixture the water needed to aid in the proper crystallization of the cement before the initial set had taken place; third, to remove mold marks and to give to the surface a roughened effect, equal to fine bush-hammering.

This process at first was of little value, when used with dark cement and ordinary sand, and it was not until white Portland cement came on the market and a suitable sand or crushed stone could be obtained, that it could be made of commercial value.

We have previously stated that the facing mixture should not be made too wet. Our reason for this is that we do not want to lose the cement from the face of the block, which, if the facing were too wet, would stick to the mold.

Our object in spraying is to wash this cement from the face of the sand and, by having the facing dry enough to come away clean, there will be suction created through the absorption of the water from the spray, which will carry the cement in between and around each particle of sand, not only uncovering its face, but allowing it to stand out slightly from the cement, thereby giving the cut-stone effect, before mentioned. If the facing is too wet, less water can be given with the spray and the tendency is for the cement to wash down over the sand, instead of away from it, and the whole to sag and run.

In spraying, where the facing has been properly mixed, watch closely and give all the water it will take without sagging. For the regular line of block nothing more need be done except to cure in the usual manner.—M. A., in Cement and Engineering News.

Clean Water Necessary for Concrete

Practically all specifications for concrete work call for clean, pure water to be used for all concrete, thus recognizing the importance of this precaution. In city work where water is obtained directly from the mains, little or no attention need be paid to its character. On railroad bridge work, however, the matter is entirely different; for in general the structures are located far from any such handy sources of supply, and water must be hauled in tank cars or pumped from the river or stream over which the bridge is being built; thus the examination of water is a necessity.

In pumping water from lakes or streams, in nine cases out of ten, the suction end of the hose or pipe is placed on the bottom, and as a result more or less mud and suspended matter is mixed with the water, and the concrete mixed therewith considerably weakened. When pumping water from a stream, the suction end of the line should be so placed as to be at some distance from the bottom, or so protected as to prevent the stirring up of mud by the suction. Muddy and slimy water should never be used, for the mud and slime coat the aggregate and preclude the possibility of a uniform and strong mixture. Poor concrete in railroad structures is in more cases due to dirty and impure water than any other one thing, but the blame is generally laid on the cement.

Before work is started on any structure, the engineer in charge should make a physical examination of the water to be used. In general, if it is fit for washing, it will be suitable for concrete. If manufacturing wastes, sewage, or other filth are discharged into the stream at points above the bridge site, a chemical examination of the water should be made. Water containing acids or alkalis should in no case be used, it being cheaper in the long run to haul pure water from some other source than to shorten the life of the structure by using that which is near at hand. The man in charge of concrete work should remember that water for mixing demands as much attention as water for drinking.—Railway Engineering.

Giving New Life to Stair Treads

Hollows worn in stone steps are prized for sentiment's sake in old public buildings and in structures where the number of years in service is part of the stock in trade. But in the present-time factory, hundred-per-cent. maintenance, representing perfect working conditions to-day, outweigh traditions of yesterday.

Concrete factory stairways which are subjected to hard wear often crumble at the edges. In a certain manufacturing plant wooden planks have been imbedded in the concrete on the part of the stair treads where the greatest wear comes. When they become badly worn new planks are inserted.

Thus the benefits of both kinds of stairs are attained with the disadvantages of neither.

A Point of Law for Contractors

A case of some interest to persons who may happen to buy property in an unfinished condition on the understanding that the seller is to complete the construction work has been decided by Mr. Justice Lafontaine, Montreal. Arthur Caron, et al., sued Andrew Vallee for $550 for work done on a house which Vallee had bought from a man named Gauthier. In the transaction between Gauthier and Vallee it was agreed that certain building work at the time incompleted would be completed at the expense of Gauthier.

Vallee did not pay all cash and when, a short time later, Gauthier become insolvent the painting contractors were instructed by Vallee to go ahead and finish the work, it being understood they would be paid out of the balance of the sale price still due by Vallee. Unfortunately the cost of the work amounted to $550, while the amount due by Vallee was only $300. It was admitted by defendant in giving evidence that in paying the $300 he had promised to pay the balance, provided there remained enough money on the balance of the sale price to provide for the payment.

The Court in summing up, held that the payment on account by defendant constituted a commencement of proof authorizing the introduction of parol testimony to establish defendant's responsibility. Three witnesses, present at the transaction, testified that defendant had made no restriction in giving the promise. Moreover, pointed out His Lordship, such restriction was an unseemly one, inasmuch as the plaintiffs knew at the time that Gauthier was insolvent, and thus they would not have gone ahead with the work except on the understanding that the defendant was responsible. Anyway, concluded His Worship, the work done by the contractor had given additional value to defendant's property and in law a person cannot enrich himself to the prejudice of another.

Toronto Architects Predict Building Impetus for 1914

Notwithstanding the atmosphere of depression which now pervades industrial Toronto, the majority of the business men seen by The Globe yesterday in an inquiry as to the immediate outlook, expressed every confidence in the coming season, and declared that while present conditions are not altogether desirable, the horizon is distinctly bright. The demand in the commercial output exceeds the supply in many quarters, and the only reason for reticence on the question of delivery of goods, etc., is the scarcity of money returnable.

A number of architects declared that they have much work on hand. Many firms are looking forward to extending their factory buildings, etc., should the money market in any facilitate matters.

House building, too, will receive an impetus in the outlying districts should loans be any way easy to obtain.

"Hundreds of homes are needed in the neighborhoods served by the civic car lines," declared a prominent builder yesterday. "Many families are sharing dwellings because of the scarcity during the winter, but as soon as the spring is upon us there will be a general trend northwards. I do not think things are so bad as painted in some directions, while on the other hand there are a large number of people occupying bathroom flats when they would be in a house of their own had the supply been adequate during the past summer."—Toronto Globe of January 23.

Large Number of Houses to be Built in St John, N.B.

Advices from St. John, N.B., state that the establishment of large industries and the extension of the street railway line will result in extensive building operations in that city. It is practically certain that one or more companies will undertake the erection of groups of buildings for residential purposes, being thereby able to carry on the work of construction at less cost than in the case of small contracts. The value of building permits last year was over $2,380,000, which was an increase of about 320 per cent. over the value for 1912. The present year may not show as great an amount, because last year's contracts included a sugar refinery, grain elevator and other large ones, but the number of individual buildings to be erected this year will be much larger than that of last year. The present indications are that while some industrial establishments will be built or enlarged, the greatest amount of attention will be devoted to providing homes, for which the demand exceeds the supply and grows greater month by month.

Officers of Quebec Section of Architects' Association

The Province of Quebec section of the Association of Architects met on January 22 and elected officers for the current year. They were:—President, W. S. Maxwell, Montreal; Vice-President, Joseph Perrault, Montreal; Second Vice-President, Mr. Staveley, Quebec; Secretary, Mr. J. Emile Tanier, Montreal; Treasurer, Mr. Hugh Tallance, Montreal; Committee, D. M. MacVicar, Frank D. Peden, D. MacFarlane, E. Payetti and G. A. Monnette.

The delegates elected for the Royal Architectural Institute were:—John Archibald, H. Marchand, Alcide Chausse, G. A. Monette and Elliott Moxwell.

New Beaver Board Factory at Thorold

The Beaver Co. of Buffalo and Ottawa, have erected a new plant at Thorold, Ont. The main building is 350 x 150 ft. with an addition at the north end of 150 x 74 ft. and of 150 x 150 ft. at the south end. The plant will consist of four buildings, and will cost about $500,000. Thirty loads of machinery, most of it the parts of one large machine, have been delivered. The wood-

fibre machine will extend the length of the main building of the plant. The company have assured themselves of 2500 h.p. for thirty years. The plant will be ready in April.

On January 5 to 10 the Annual Sale Convention of the company was held at Buffalo. One of the features of the convention was a visit to the new plant at Thorold.

Arranging for "Extras" on Construction Work

Quite often trouble arises between the architect and contractor over the question of "extras" on a job. Before a contract is closed it is a good plan to have a clause inserted, which will do away with this difficulty. Something along the line of the following might be suggested :

"Extra Work: The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or if the extra work should be of a class for which no rate is fixed by current contracts, at the actual reasonable cost to the contractor, as determined by the engineer, plus 15% of said cost.

The contractor shall have no claim for compensation for extra work unless the same is ordered in writing by the engineer."

World's Highest Building to be Erected in New York

Francis H. Kimball and Fred H. Roosa have filed tentative plans for a building to be erected in New York in a block bounded by Broadway, Eighth Avenue, Fifty-Seventh and Fifty-Eighth Streets. The structure, according to these plans, will be 894.6 feet high and will cost $12,5000,000.

The plans indicate that the building will be fifty-one storeys high, with a basement and sub-basement and that the facade will be of brick and light stone in ornamental design following the Gothic style.

E. T. Patterson with Canadian Supply & Contracting Company

Mr. E. T. Patterson is now representing The Canadian Supply & Contracting Co., Limited, Toronto, who sell "Casco" weather-proof products. Mr. Patterson will cover the whole of Ontario, calling on builders' supply houses throughout the Province.

Wm. Nonneman, President, Montreal Mantel & Tile Dealers' Association

Mr. William Nonneman was recently elected president of the Montreal Mantel and Tile Dealers' Association, and was chosen by the other members to represent them on the Board of Directors of the Builders' Exchange in place of Mr. Fred B. Locker, last year's president and representative. Mr. Nonneman was born in Philadelphia thirty years ago and has been connected with the tile business all his life. Seven years ago he came to Montreal and was engaged as superintendent of the tile setting work in the Windsor Hotel, Montreal; the Chateau Frontenac, Quebec, and similar important jobs in Toronto. By diligence and attention to business he attracted the favorable notice of the Sanitary Tiling Company, Bleury Street, Montreal, and was appointed manager of the concern, which position he has held during the past four years.

Cranes for the Builder

A builder who has used cranes in the erection of small as well as large buildings found that a considerable economy was secured as a result of their use. A catalogue issued by John T. Hepburn, 18 Van Horne St., Toronto, illustrates a line of builders' hand and electric cranes of all sizes from half-ton upwards, which would prove valuable additions to builders' equipments. This catalogue contains also a number of photographs of plants and machinery, and a builder would find it of considerable interest. Any reader of The Canadian Builder & Carpenter may secure one by writing to the address given.

Toronto Building Permits for 1913

During the year 1913, building permits were issued in Toronto for 9,884 buildings, as follows :

4,586	brick dwellings	$12,181,280
267	brick veneers	458,195
31	roughcast	34,445
205	frame	199,197
273	stores	890,800
71	factories	2,054,950
47	warehouses	1,100,600
43	apartments	891,500
16	banks	1,169,150
10	Sunday schools	251,800
60	theatres	1,119,400
48	offices	1,799,925
23	schools	2,378,100
10	churches	395,000
4,194	miscellaneous buildings	2,114,282
9,884		$27,038,624

Master Masons Hold Meeting and Elect Officers

While recognizing that there will be a letting up in general speculative erection of houses and other buildings during the year 1914, optimistic views were expressed by the members of the Master Masons' Section of the Builders' Exchange of Toronto, at their annual meeting held January 5. Quite a large number of public works are to be undertaken in the year, and as the spring opens up, other new buildings are expected to be started.

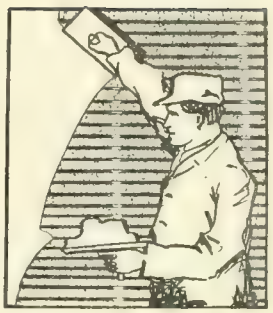
The following officers were elected for the ensuing year: President, Harry Bayliss; vice-president, Ernest Wood; treasurer, James Crang; secretary, A. E. Flower; executive committee, the above and William Self and John Aldridge.

Officers of Brick Makers' Section of Toronto Builders' Exchange

The annual meeting of the brick section of the Builders' Exchange of Toronto, was held on January 6. The following officers were elected:

President, J. R. Walsh, of Joseph Russell, Toronto; vice-president, Chas. A. Millar, of Prices, Ltd., Toronto; secretary, A. E. Flower, Builders' Exchange, Toronto; treasurer, Isaac Price, Toronto; Executive, the above, and Wm. Pears.

Brick Work and Plastering



Some Inside Facts About Stucco*

The ease with which stucco lends itself to artistic treatment, has tended toward a precocious development that has been harmful. The trouble is that a stucco job which at first appears to be an artistic gem, gradually develops flaws which may finally overshadow the original beauty.

What is the cause of the "checking" and "hair-cracking?" Is it superficial, or is it hidden in the physio-chemical composition of cement? Much valable study has been developed to the external treatment of stucco, but few have stopped to question its internal composition. Let us therefore study some inside facts of stucco mortar.

The subject is an interesting one, and the conclusions startling. Who would have thought, for instance, that cement acts like wood, swelling up on wetting, and contracting on drying? But this is proven by careful measurements.

A. T. Goldbeck, of the U.S. Department of Agriculture, showed this in experiments conducted by him. His researches were confirmed by Prof. A. H. White, working independently in the University of Michigan. Both of these gentlemen proved scientifically and conclusively that mortar and concrete expand on wetting and contract on drying, the action keeping up for years.

In some cases the amount of expansion (due to wetting) was as great as that due to 100 degrees increase of temperature. This is a startling fact, when it is remembered that concrete expands with heat just as much as iron does. The strains due to wetting and drying are, therefore, very severe, and come quickly and repeatedly. It is not difficult to see why this should be such a serious source of cracking.

It is fortunate that only the cement is affected, the sand remaining practically uninfluenced by moisture. Therefore lean mortars are much less affected than rich ones; a 1:3 stucco when moistened expands much less than a 1:2. But, as Prof. White says: "If a stucco is lean enough to avoid cracks, water will go through freely, and if it is rich enough to keep water out, it will crack."

In Italy, where stuccos have been used for centuries, masonry walls were thick and waterproof in themselves. Cement was made from pulverized natural rock, and lean stucco mixtures were a matter of economy. The passage of ages has developed comparatively little checking in the Italian stuccos. But to-day, in America, Portland cement is cheap, walls are thin, and climate is severe, so that rich mixtures have been used in the attempt to get cheap waterproofing. The result is excessive hair-cracking.

It is, of course, true that a 1:2 stucco is more waterproof than a 1:3, but it is very much more liable to crack. On the other hand, a 1:3 stucco, properly applied, is safe from cracking, though very porous. This, then, is the dilemma which confronts the constructor: how to make stucco lean enough to avoid cracks, yet non-porous enough to keep out water. The problem has been solved by the use of a 1:3 mortar in conjunction with an effective waterproofing compound.

The leanness of the mortar prevents cracks, and the compound makes the mortar waterproof. This gives absolutely reliable results, both as to permanency of surface and permanency of waterproofing.

Practical experience has corroborated the laboratory in showing the need for lean mixtures; but, as is frequently the case, we did not see the every-day facts in clear light until science opened our eyes. For instance, it has long been known that excessive troweling of a floor, etc., should be avoided. Now we understand that the troweling worked the particles of cement to the surface, making a rich mixture which cracked for the reasons above mentioned.

Some years ago an architect was building a stucco home for himself. The contractor ran short of cement and asked for permission to use a leaner mixture. This was permitted for the back of the house where it wouldn't be noticed, but the richer mortar was insisted on for the rest. To the surprise of everyone, the back wall is still flawless, while the front of the house is full of hair-cracks.

It must be emphasized that with a lean mortar the permanency of the waterproofing compound is a very important point, as the stucco is exposed to beating storms. A permanently waterproof stucco is dependent on using a compound that is absolutely insoluble and unaffected by the elements. Bituminous waterproofing roducts belong to this class; and compounds have been developed which are miscible with water, yet become absolutely insoluble after the mortar has set. This result is obtained by emulsifying the bitumen, which then mixes with water as easily as milk does (milk is an emulsion). But when the mortar sets, it de-emulsifies the bitumen, which then becomes as insoluble as a milk spot. (Butter is de-mulsified milk, and is not miscible with water.)

Bituminous materials so prepared give a very high degree of permanent waterproofing. They are absolutely unaffected by salt-air, brine, running water, boiling water, and ordinary chemicals. If desired, 10 per cent. or more may be incorporated in the mixture, and the waterproofing effect correspondingly increased. In this way a factor of safety may be secured which is as important in waterproofing as in other branches of engineering. It then becomes possible to waterproof under guarantee a cellar 50 feet below tide level, by means of a three-quarter-inch interior mortar facing. Evidently this is the kind of material which will give satisfaction also in external stuccos, where no pressure is encountered, but where, on account of the lean mix-

*By Ralph L. Shainwald, Jr., A. M., Manager, Impervite Waterproofing Dept., the Standard Paint Co., New York City. In Concrete Cement Age.

ture, a safety factor is desirable to cover variations in mixing and plastering.

Bituminous materials also lubricate the mortar, enabling a very lean mixture to be troweled easily and compactly. They also retard the too-rapid drying-out of the stucco.

We might mention here that if new, green stucco is subjected to the rapid evaporation of hot summer days, great care must be taken to prevent premature drying-out. It must be remembered that the setting of Portland cement is a chemical reaction that requires time and moisture. Mortar will have no strength unless this set is obtained. As mortar dries, it shrinks. This shrinking puts a strain on the mortar which causes cracks if it comes before the cement has sufficient strength to withstand it. If, however, the stucco is kept moist for several days, by means of tarpaulins or fine spray, the cement will harden normally and become strong enough to withstand the strain caused by drying. Soap compounds should be avoided, as they delay the setting, thus causing the mortar to remain weak for a longer time. If stucco is made from a lean mortar, properly waterproofed, properly foundationed, and kept from premature drying, it may be allowed to harden without fear of immediate or subsequent cracking.

On large surfaces the thermal expansion should be considered, especially if the stucco is applied to a base having a different rate of expansion. It may be advisable to divide the surface into panels, having projections which add to the pleasing effect and facilitate the uniform application of the stucco.

The above outline calls attention to a few internal characteristics which are vital. Relieve the stucco of the disrupting strains caused by their disregard, and a worthy material is secured for the best ideals of architecture.

Insulating Brick Walls

Question.—I am building a brick and tile residence. The outer wall is face brick (impervious) with a 2-in. air-space and backed up with hollow clay tile 4″ x 5″ x 12″, laid on the 4-in. side, thus making a 10-in. wall. Where the courses come even across, say about every fourth or fifth course, the face brick is used as a tie, and, of course, being flush on the outside (Flemish bond work), lacks about 2″ of reaching to the inside of the inner wall.

This leaves small holes the size of the end of a brick which will fill all right with plaster, if it is safe to do so.

What I fear is that the brick used as a tie will act as a conductor (together with the plaster at the end of the brick) and conduct the cold in extreme weather to a point on the inside of the finished and decorated wall where it would meet the heat of the room and form a condensation which might result in "sweat" appearing at these points by reason of heat and cold coming together suddenly, as one sees it at times on the inside of a pane of window glass. If there is no danger of this, I shall certainly be glad to know. If these is danger then I would appreciate your recommendation as to its prevention.—A. F. G.

Answer.—In regard to the possibility of interior condensation in the construction as outlined above, I want to say as a preliminary that, no doubt, in seven cases out of 10 the construction with solid plaster as described would be all right, but occasionally there are especially damp days and in some climatic conditions, the condensation suggested might occur.

It will be understood that bricks ordinarily laid cannot have all the interstices in and between them absolutely filled with mortar, and there is the possibility of letting water work into these interstices, and follow the impervious brick into the plaster. I have known of water following through a well-built brick wall after a long-continued rain storm, when the solid brick-work was 3′ inch.

Therefore, I should advise that the recesses at the end of the bricks be covered up by any form of light weight wire lath, say a strip 4″ to 6″ wide, nailed over the recesses, so that when the plaster is put on there is a 2-in. air space between the brick and the plaster.

This will make a perfect job so far as insulation is concerned, with no great outlay above the value of the plaster which it saves.

The Possibilities of Brick as a Building Material

Considered from the point of view of beauty, brick would seem to occupy a unique position among the structural materials. Analysis discloses the following interesting points: Brick are made in reasonably small units, so that in the case of many modern buildings, at least 100,000 of them show on the exterior. This, together with the varying shapes and sizes obtainable, make possible an almost infinite variety of form and pattern, thus giving full scope to the imagination, ingenuity and skill both of the designer and the workman.

Brick, moreover, is now made in almost every conceivable color and shade, the permanency of which is equalled by scarcely any other building material; with such a "palette" therefore, at command and by a skillful use of color, a workman may add to his design that living touch which the painter gives us in his painting.

Brick also may be counted unique in that it requires for its structural efficiency the use of a considerable amount of material of quite another kind and color, namely, mortar; and, further, that this material of necessity must show in the form of a joint to a more or less degree in the face of the finished wall.

Joint Not Blemish.

A mistaken idea has prevailed that the mortar joint is a blemish that should be suppressed as far as possible, or be colored to match the brick. We find, however, that the designer of to-day seizes the opportunity afforded by a mortar joint to introduce into his wall another element of color and pattern.

The word "texture" lately has come into use in connection with brickwork, and, strange to say, this word has a plausible application, for the builder of interesting brickwork has much in common with the weaver at the loom as far as resulting color effect goes.

Just as the weaver, with his threads of varying sizes and colors, produces a never-ending variety of useful and beautiful fabrics, so it is possible for the brick builder, with his bricks and joints of many colors and sizes, to weave new ideas and combinations in his work, all in beautiful and imperishable patterns; and this applies to all brick.

Type of Joints Used in Brickwork

Good brickwork depends upon good workmanship. The units used for building up a wall, and the mortar used for bedding them, are in themselves anything but beautiful. If beauty is to be had from materials in themselves ugly, then it must be had in the way they are bonded and woven together, the color and texture

of the materials, and the way they are blended. Nothing can be more common or unattractive than a poorly laid wall of common brick, and nothing in the building line is more attractive than a well-built wall of good brickwork. It is a very difficult thing to make a good-looking wall with poor materials, and it is easy to make a poor-looking wall with the best bricks and mortar obtainable. The two elements which go furthest towards making a wall attractive are the joints, by which is meant the size, color and finish; and the pattern in which the bricks are laid.

There are a variety of joints used in brickwork, and before the pattern of brickwork can be explained, it will be necessary to become familiar with the different joints used. The joint most commonly used for ordinary brickwork, because it is quick and easy to make, while at the same time presenting a fairly good surface for outside wear, is the "struck joint" shown in Figure 1. This is made by drawing the point of the trowel along the joint to remove the surplus mortar, and give a smooth finish which is flush with the brick at the top of the joint, but slightly back of the face of the brick at the bottom of the joint. The principal objection to this type of joint is that it carries onto those innumerable ledges all the water flowing down the side of the wall, and during a heavy rain storm adds greatly to the amount of moisture absorbed by the bricks. Notwithstanding this fact, it is the most commonly used joint for the finished surface of ordinary brickwork, and answers very well for this purpose.

The "weathered joint" shown in Figure 2 is just the opposite of the struck joint, in that it is made by drawing the point of the trowel along the joint in a slightly slanting position, thereby cutting off the mortar at the top of the joint, but leaving the mortar at the bottom flush with the bricks. Such a joint sheds all water flowing down the wall, and decreases to a large extent the amount of moisture soaking into the building.

A "raked joint" is shown in Figure 3. This is a recessed joint made by cutting the mortar back from the surface of the brick while it is soft, either with the point of the trowel, a nail, or a piece of wood. Such a joint is not, strictly speaking, the best from a weathered standpoint, but is often effective from an ornamental standpoint when using bricks of rough or coarse texture in weaving the pattern in the wall.

The "rough cut flush joint" shown in Figure 4, is used both for ornament and for utility. For inside

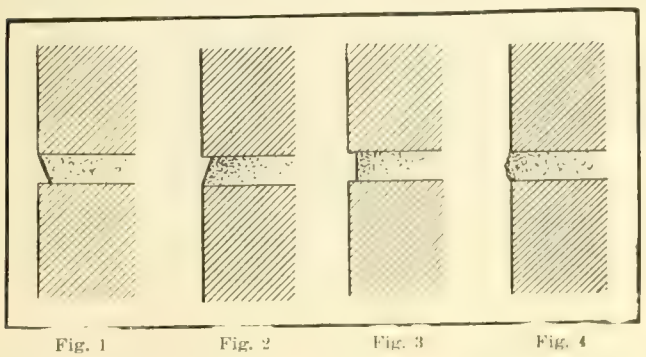


Fig. 1 Fig. 2 Fig. 3 Fig. 4

brick walls which are to be plastered directly on the wall, the brickwork, particularly the joints, are left rough as they then afford a better clinch for the plaster. In finished or face work this joint is likewise used with bricks of rough texture, as it harmonizes then with the brick more than a smooth joint would. Sometimes those rough cut flush joints are made very large, and a white mortar used, giving as much or more white surface to the brickwork than colored surface of the brick units. The rough cut flush joint is made by allowing the mortar to squeeze out beyond the face of the bricks, then cutting off the surplus with a quick stroke of the trowel.

The "tooled joint" shown in Figure 5, is a smooth joint and is made by using a tool known as a "jointer." The end of this tool may be half round making a joint

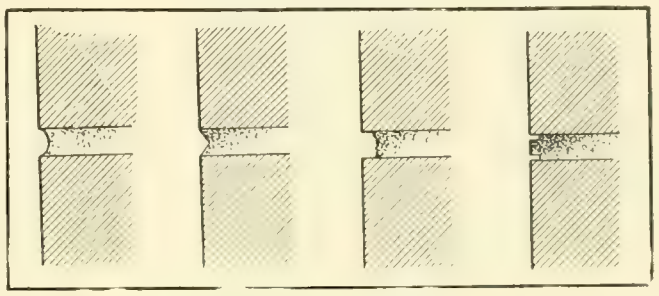


Fig. 5 Fig. 6 Fig. 7 Fig. 8

like that shown in the illustration, or V-shaped, as shown in Figure 6. Such a joint, while good from the standpoint of weathering, always looks artificial, and on account of its smooth surface seldom harmonizes with the rough texture of ordinary brickwork. While a tooled joint would harmonize with the texture of pressed bricks, it is seldom used therewith, for pressed bricks, when properly laid, are so close together that a tooled joint could not be used.

"Rough raked joints," shown in Figure 7, are the same as the smooth raked joints with the exception that a coarser mortar is used, and this when raked out leaves, instead of a smooth and perhaps polished surface, a rough joint in which the coarser particles of mortar show. When properly used, this joint is perhaps the most artistic of them all; but it is at its best only with rough wire-cut bricks, or with tex-tile hollow tile facings.

The "rodded joint," shown in Figure 8, completes the types of mortar joints used in brickwork. The rodded joint is made by using a straight-edge, and cutting a straight line with the edge of the trowel along the top and bottom of the joint, flush with the edges of the brick.

Officers of St. Catharines' Exchange

At the annual meeting of the St. Catharines Builders' Exchange, held on January 9, the following officers were elected:

President, Chas. Chapman; Vice-President, Jno. Davis; Secretary, Thos. Mesler; Treasurer, Wm. Leach; Executive Committee, trade representatives: H. P. Nicholson, masons; Jno. Davis, carpenters; Jas. Dakers, painters; Chas. Hoople, plumbers; F. W. Martin, electrical; Auditors: Jno. W. Carl and A. C. Nicholson.

New Officers of Calgary Builders' Exchange

The annual meeting of the Calgary Builders' Exchange was held on January 14th and the following officers were elected for the ensuing year :

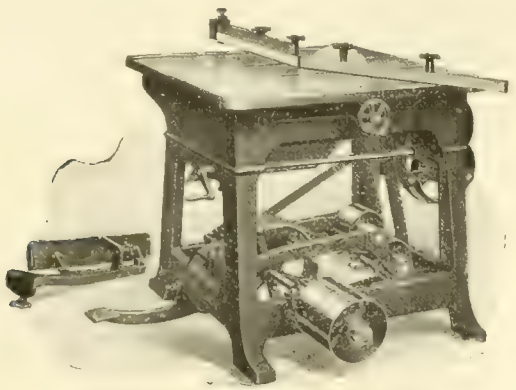
President, Charles P. Rutty; First Vice-President, G. Silverster; Second Vice-President, Fred Jones; Third Vice-President, James Marr; Sergeant-at-Arms, P. E. J. Prevel. The following new directors were elected to the Board for a term of three years, expiring December 31, 1916:

E. J. Crandell, D. R. Foulds, W. Sutherland, R. J. Priestly.

New Equipment

Combination Saw and Dado Machine

The accompanying illustration shows a machine for ripping, sawing to any angle up to 45 degrees, plowing, grooving, dadoing, squaring up, etc. The saw travels 15 ins. and cuts to 4 ins. thick. The table is of iron, 3′ x 3′ 3″, laid out for cutting any angle desired up to 45 degrees as stated. The hand wheels adjust the sliding tops apart for using dado head, changing saws, etc.



Combination saw and dado machine.

A friction device is provided for bringing the carriage forward and is operated by pressing the foot treadle 1-16″ which connects the power. Rate of feed can be varied from 5 to 100 feet per minute. In certain sizes the travel of the saw carriage is controlled by a foot lever. The expanding dado head is 8″ diameter, and is furnished with five sets of cutters, from 5-16″ to 1¾″ wide. Cuts ¾″ deep.

This machine is manufactured by the American Wood Working Machinery Co., Rochester, N.Y., and Toronto, for whom the Stuart Machinery Co., 764 Main Street, Winnipeg, are Canadian agents.

Economical Use of Herringbone Lath in Houses

In the majority of situations wood lath is substantial and satisfactory, but an investigation by builders and tests made by manufacturers, show that failures in plaster occur always at given points in any house, and when it does, the value of the entire structure is depreciated even though all the rest of the plaster is sound. The failure is caused by moisture reaching the wood through the plaster and then drying out. This causes shrink and swell alternately, followed by buckling of the lath together with schears on key between the lath which causes ultimate failure of the lath to adhere.

The parts of the house which are subject to greatest exposure of this nature are the ceiling of the kitchen where the steam from cooking arises; ceiling and side walls of bath which are exposed to the steam of the bath; ceiling under bath subject to water if an overflow occurs in the bathroom; and side walls behind radiators, providing radiators are for a steam heating system. If these points are covered with herringbone steel lath the additional cost over wood lath for the ordinary sized house would probably be from $5 to $7 and the condition of the building, judged by the places above enumerated, would show very little, if any, difference from the condition when the house was erected.

A purchase of a building from a speculative builder, looks for signs of failure in the plaster as a sure sign of locating a poor building. If he finds signs of failure in the places enumerated above he will figure the value of the house as depreciated ten or fifteen per cent. The elimination of any chance of failure by using metal lath at the points indicated. The use of it in these locations is not measured by its cost, but also by the depreciation, to which reference has been made. Herringbone lath spans sixteen inches and may, therefore, be used in ordinary building construction and may be used on either wooden or steel joists.

Annual Meeting of Montreal Exchange

The Sixteenth annual meeting of theMontreal Builders' Exchange (Inc.) was held in the Exchange rooms, E. T. Bank Building, on Monday, January 26. The President, Joseph Brunet, occupied the chair and most of the directors, together with several members, were present.

The reports, on the whole, were satisfactory; but the fact that there was a deficit at the end of the year of about a thousand dollars, owing to the shrinkage in the receipts from the exhibit hall, gave rise to some discussion. The outcome was the decision of the meeting that the Board of Directors be authorized to call on the members to make a voluntary contribution to average about five dollars in addition to the annual fee, which would immediately produce a fund sufficient to wipe out the small deficit.

THOMAS GILDAY

President Montreal Builders' Exchange. Mr Gilday is president of the Campbell, Gilday Co., Ltd., general contractors, Montreal. He is actively connected with the Montreal Board of Trade, and with various fraternal societies in the city.

Officers were elected as follows :

President, Thomas Gilday; First Vice-President, Frank Panzo; Second Vice-President, Ernest W. Sayer; Secretary-Treasurer, R. L. Werry; Directors: Messrs. John Allan, Ernest Richardson, Kennedy Stinson, T. A. Morison, John Quinlan, P. S. McKergow, Rene Lessard, J. P. Anglin and W. Clement Munn.

News of Builders' Exchanges

G. T. Davidson, Secretary Hamilton Exchange

At the monthly meeting of The Hamilton. Builders' Exchange, held on January 13, G. T. Davidson was elected secretary to succeed A. Healey.

The new building by-laws now before the Board of Control of that city were discussed at length, and will be threshed out further at future meetings.

Prior to the adjournment of this meeting, President Geo. Clapham presented retiring President Nicholson with a handsome chair upholstered in leather.

Toronto Exchange to Move to New Offices

At a special meeting of the Toronto Builders' Exchange, called for February 9, to discuss the advisability of securing new quarters, it was decided that such a plan was a good one, and within a short time the offices will be moved to the new Goodyear Building, at the corner of Simcoe and Richmond Streets.

Officers of Medicine Hat Builders' Exchange

The officers of the Medicine Hat Builders' Exchange for 1914 are the same as those who served in 1912, viz.: G. E. Hotson, President; J. L. Dombrosky, First Vice-President; J. A. Trimble, Second Vice-President; Thos. Depew, Sergeant-at-arms; Chas. E. Dyce, Secretary-Treasurer.

During 1913, the membership of the Exchange increased from 31 to 57.

Toronto Exchange Requests Representation on Transportation Commission

It has been proposed by Mayor Hocken of Toronto that a commission be appointed to work out Toronto's transportation problem.

A. E. Flower, Secretary of the Toronto Builders' Exchange wrote Mayor Hocken, asking that if such a commission is appointed the Exchange be invited to nominate a representative. He pointed out that the Builders' Exchange has a membership of upwards of 300, and comprises many influential business firms, who are as much interested and as capable of discussing intelligently the subject of transportation as the representatives of any other bodies.

The Mayor replied that a committee had been appointed to look into the matter, and he referred Mr. Flower to Sir William Meredith. Mr. Flower has written Sir William, and the matter is now being taken up.

Objections Being Raised to Hamilton's New Building By-Law

Eight months or more ago, when the idea of drafting a new building by-law was first conceived by the civic authorities, letters were sent out to all the architects in the city, inviting them to submit suggestions. Not a reply was received. Now that the final draft of the by-law is about ready for the city council, numerous objections are going up on all sides.

Probably the greatest of these is against the provision which requires all buildings erected in the central part of the city to be of fireproof construction. At a meeting of the board of control, held this morning, Mayor Allan said that he was much opposed to this feature of the by-law, as he thought it would just about double the cost of building construction in the central part of the city.

"Why, it's ridiculous," he said. "Not even New York or London would think of doing such a thing. While I am opposed to this, however, I think that the people who are kicking are not entitled to much sympathy, as we invited them months ago to let us have their views."

City Solicitor Waddell is now scanning the by-law carefully for conflictions of any sort, after which it will go to the city council.—Hamilton Spectator, Jan. 15, 1914.

Annual Meeting of Toronto Builders' Exchange

The annual meeting of the Toronto Builders' Exchange was held on January 19. The reports of the officers showed the affairs of the association to be in excellent condition; a good year in all lines is anticipated for 1914.

One of the big points under discussion was the new form of contract prepared by the Toronto Exchange for use between architects and contractors. A copy of this had been sent to C. H. Acton-Bond, President of the Ontario Architects' Association, and it was stated at the meeting that the soliciors for the architects had approved of the form, with a few exceptions. It is hoped to have these few objections threshed out at a meeting of the two committees, to be held in the near future, and to have the form in use by next spring.

P. L. Fraser, a former secretary of the Exchange, but now of the Ontario National Brick Co., Toronto, told what had been done at last year's convention of the C. N.A.B.E., and George Gander gave a talk on the happenings at the convention of the Provincial Builders and Supply Association in 1913. This latter association meets in Toronto the latter part of February.

The officers were all re-elected with the exception of a few names on the Executive, as follows: President, Charles Bulley; First Vice-President, George Oakley, junior; Second Vice-President, G. W. Britnell; Treasurer, John Aldridge; Secretary, A. E. Flower; Executive (besides the above), Fred. Armstrong, E. J. Curry, Geo. Gander, A. E. B. Hemmingway, S. R. Hughes, S. H. Hurst, Harry Jennings, O. M. Moore, Walter Page, Wm. Pears, H. Taylor and Arthur Walsh; Auditors, John Barnes and James Munro.

Saskatchewan Exchanges Protest Against New Law

That general contractors and employers of labor throughout the entire provinces of Saskatchewan are strongly dissatisfied with the legislation passed by the Scott Government at the last session compelling them to pay wages in currency or accepted cheque, is evidenced by the frequent protests that have been made since the law went into effect. Following the protests of both the Regina Builders' Exchange and the Saskatoon Builders' Exchange, the Moose Jaw Exchange has also made a formal protest against this legislation.

Officers of London Builders' Exchange

The Sixteenth Annual Meeting of the London (Ont.), Builders' Exchange was held in their rooms, Bank of Nova Scotia Building, on Monday, January 19. The following members were elected officers for the year 1914 : Retiring President, L. H. Martyn; President,

L. H. MARTYN
Retiring President, London Builders' Exchange

T. R. Wright; First Vice-President, E. R. Dennis; Second Vice-President, A. Nobbs; Secretary-Treasurer, F. S. Barclay; Auditors, Messrs. J. Whittaker and Ed. Gerry.

The following are the Board of Directors for 1914 :

Messrs. T. R. Wright, E. R. Dennis, A. Nobbs, L. H. Martyn, Geo. S. Gould, L. R. Folley, W. T. Pace, F. G. Tulett, Geo. H. Haney, and F. S. Barclay, Secretary.

The past year has been the most successful year in the history of the Exchange.

Montreal Exchange Desires Change in Insolvency Law

As stated in the January issue of The Canadian Builder & Carpenter, the members of the Montreal Builders' Exchange feel that the existing laws relative to the winding up of insolvent estates are very unsatisfactory. They sent a letter to Hon. C. J. Doherty, Minister of Justice, asking for some changes, and received a reply that was more or less favorable.

Commenting on the matter, the Montreal Herald has the following to say :

"The Builders' Exchange of Montreal has done well in seeking to revive the agitation in favor of insolvency legislation for the whole Dominion. Time and again a similar movement has been begun only to be dropped on the ground that the legislation sought for was premature.

"The difficulty hitherto has been to frame legislation which would put all creditors on the same footing in winding up a bankrupt concern. Banks have had a preferential position with regard to assets covered by warehouse receipts, bills of lading and similar instruments in their hands as security for advances. When, as is usually the case in bankrupt businesses, the bulk of an estate is already pledged for advances made, the residue yields only a small return to other creditors. This advantageous position held by the banks is guaranteed them under Federal laws, and it has hitherto been impossible for the Provinces, of which each has a separate bankruptcy act, to modify it in any way.

"The need for similar legislation all over Canada is, of course, apparent. So long as each Province has different laws the foreign investor feels the lack of security this condition of affairs entails. Some of the Provincial laws are excellent, others less so, but it is their disparity that the foreign investor feels most. With one law in force all over Canada this disparity would not exist. The outsider with money to invest in Canada could, by familiarizing himself with the Federal law, know exactly where he would stand in the event of the failure of the concern in which his money was placed. In a word, it would increase confidence in the Dominion abroad. The difficulties in the way of legislation are, as we have seen, considerable; but it should not be impossible to surmount them if the Federal Government, which alone can do it, undertakes the task."

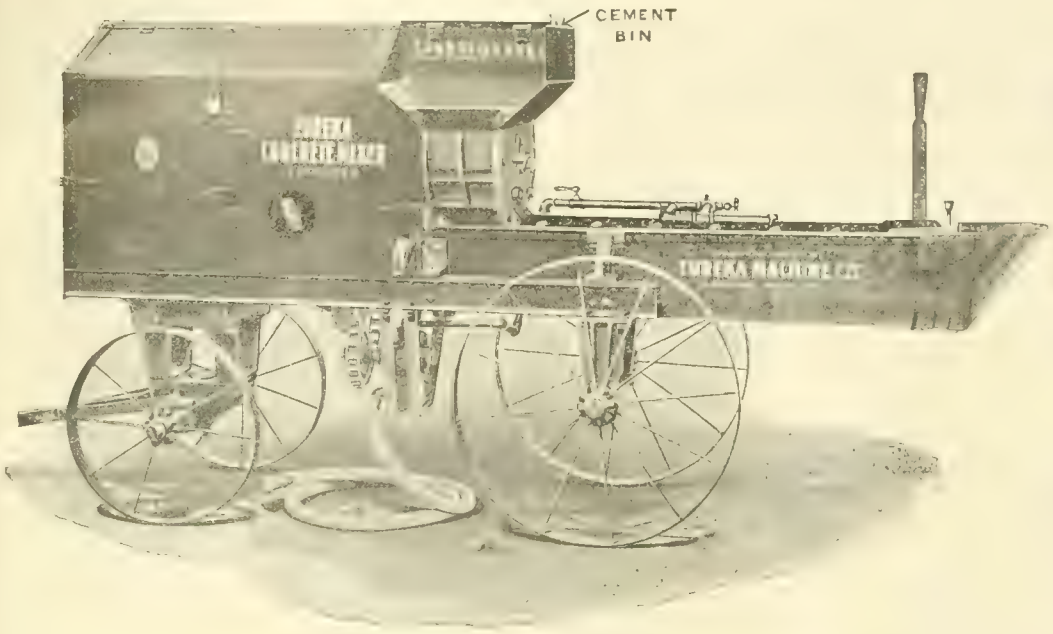
THE CONVENTION OF THE Western Section of the Canadian National Association of Builders' Exchanges will be held in Edmonton, February, 24, 25 and 26.

Building Permits for 12 Months of 1912 and 1913

	12 Mos., 1912	12 Mos., 1913	Inc.
Halifax	$ 589,775	$ 835,850	$ 246,075
Sydney	656,111	321,198	*334,913
St. John	566,200	2,380,660	1,814,460
Montreal	19,408,690	27,032,097	7,623,407
Maisonneuve	2,685,828	2,337,323	*348,505
Outremont	1,582,490	1,902,000	319,510
Verdun	872,085	1,018,015	145,930
Westmount	1,824,369	2,009,544	.....
Quebec	933,002	1,929,781	996,779
Berlin	834,213	647,571	*186,742
Brantford	1,167,105	1,015,886	*151,219
Chatham	201,591	338,310	136,719
Fort William	3,746,565	4,029,965	283,400
Guelph	388,499	357,335	*31,164
Hamilton	5,491,800	5,110,000	*381,800
London	1,136,108	1,789,920	653,812
North Bay	462,675	492,940	30,265
Ottawa	3,621,850	3,991,380	369,530
Peterborough	465,905	488,540	22,635
Port Arthur	2,494,179	1,935,680	*558,499
Preston	337,160	400,055	62,895
St. Catharines	811,335	759,478	51,857
St. Thomas	89,946	154,471	64,525
Stratford	439,496	334,085	*105,411
Toronto	27,401,761	27,038,624	*363,137
Welland	469,744	611,157	141,413
Windsor	988,063	1,148,975	150,912
Winnipeg	20,563,750	18,621,650	*1,942,100
St. Boniface	1,251,512	1,038,840	*212,672
Moose Jaw	5,275,797	4,225,000	*1,050,797
N. Battleford	896,970	850,195	*46,775
Prince Albert	2,042,150	1,380,290	*662,160
Regina	8,047,309	4,018,305	*0,029,004
Saskatoon	7,640,530	2,633,845	*5,006,685
Swift Current	791,014	1,018,308	227,294
Weyburn	766,660	177,400	*589,260
Yorkton	735,966	437,777	*298,189
Calgary	20,394,220	8,619,153	*11,775,067
Edmonton	14,446,819	9,242,450	*5,006,685
Lethbridge	1,358,250	504,954	*843,296
Red Deer	389,015	149,250	*239,765
Medicine Hat	2,826,219	3,851,572	1,015,353
Victoria	8,060,170	3,766,230	*4,293,940
New Westminster	1,634,518	958,975	*675,543

*Decrease

For the year ending December 31, the amount of building done in Port Arthur is valued at $1,935,680 as compared with $2,494,179 in 1912. The big amount in 1912 is accounted for by the fact that the permit for the new Government elevator itself costing $1,500,000, was issued in December of last year.



Eureka No. 50—Weight 2000 lbs.

A Money-Maker For Contractors

Costs Little to Buy; Almost Nothing to Maintain and Operate.

Every Advantage You Can Think Of

A MONEY-MAKER

¶ Pays for itself many times over in a year's time, in actual practice.

COSTS LITTLE TO BUY

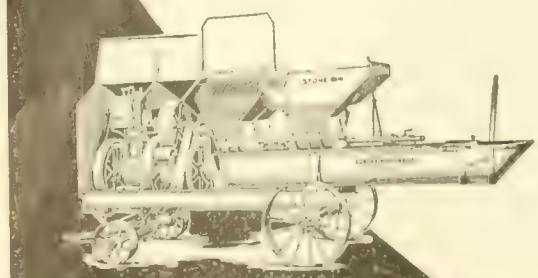
¶ The trifling sum of 80 cents a day pays for it in a year—and after that everything is velvet.

QUANTITY FIXED THE PRICE

¶ A large output makes its low price possible. Manufacturing in small quantities would easily add a third more to the price asked.

ONLY 4 CENTS AN HOUR TO RUN IT

¶ The time is past when you have to buy and operate big, unwieldly, slow-moving, expensive mixing machinery on any sized job—big or little. The cost to run is next to nothing.



NO WHEELING
NO WAITING
NO GUESSING

BUILT OF STEEL

¶ No matter how it is used, it's bound to last. It's steel, and correctly distributed. Nothing like steel for long life and strength—costs more but will defy accidents and abuse. This mixer was built for hard, severe service, and won't break or go wrong when you need it most.

SELF-MEASURING

¶ No filling barrows—no wheeling. Shovel from the pile into the mixer. This cheap method will surprise you.

MOVE THE MIXER NOT THE MATERIAL

¶ Easy to move—two or three men can do it. Always handy to the materials.

POWER TO SPARE

¶ A high-grade, guaranteed, 2½ H.P. "NEW-WAY" gasoline engine furnishes *surplus power.*

WHAT YOU GET

¶ The outfit fully equipped as shown in picture, with two bins, one for cement, the other for sand or gravel, pump for supplying water, suction hose, engine, tools, etc. Shipped set up all ready to run, with complete instructions.

ONE YEAR GUARANTEE

¶ Nine years of "knowing how" are back of every EUREKA. Many thousands in use, and more than measuring up to the requirements. *We make every claim and promise good.* Write at once for price and our *"square deal"* plan.

Ask for Catalog No. 42

Eureka Machine Co.

19 Case St., Lansing, Mich.

Price List of Building Materials—Revised to Date

PRICE AT MONTREAL

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$24.00
2 x 4 in. to 2 x 12 in., 16 ft.	26.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00 to 30.00
1 in. hemlock No. 1.	22.00
No. 1 hemlock decking	23.00 to 25.00
No. 2 hemlock dimensions and 1 in.	26.00 to 30.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	$32.00 to 40.00
2 in. white pine, mill stock	29.00 to 33.00
⅞ x 8 and 10 in. pine shelving	36.00 to 45.00
⅞ x 12 pine shelving	42.00 to 50.00
No. 1 white pine flooring	40.00
No. 1 spruce flooring	30.00
No. 1 pine decking, D2S	40.00
No. 1 pine V. or beaded sheeting	40.00
No. 2 pine V. or beaded sheeting	30.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	$1.75
5 in. casing, per 100 ft.	2.10
8 in. pine base, per 100 ft.	3.25
10 in. pine base, per 100 ft.	4.20
4 in. pine window stool, per 100 ft.	2.75

Shingles, Lath Roofing, Etc.

No. 1 pine lath	5.00
No. 2 pine lath	4.50
No. 1 spruce lath	4.00

Cedar Posts—Fence

5 in. at small end	5c. foot
7 in. at small end	7c. foot

Hardware

Nails, wire, common	$2.30 base keg
Nails, cut, common	2.50 " "
Sash weights, cast iron	1.50 per 100 lbs.
Tarred felt paper	.43 roll
Building paper	.35 roll

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	18.00
No. 1 dry pressed buff bricks	20.50
Red stock bricks	11.50
Grey stock bricks	12.00
Wire cut brick for foundation work	10.00
Fire brick	25.00
Sewer pipe, 4-inch	10c. foot
Sewer pipe, 6-inch	15c. foot

Cement, Plaster, Stone, Etc.

Cement (bags extra)	1.85 bbl.
Sand, for cement or brick work	1.15 ton
Lime	.30 per 100 lbs
Hydrated lime	10.00
Mortar color	5.00 bbl.
Plaster of paris	3.00
Crushed stone, 2 in.	1.50
Crushed stone, 1 in.	1.60
Crushed stone, ⅜ in.	1.75
Hardwall plaster	$9.50 to 12.00 neat 6.50 sanded ton
Gravel	1.85 yard
Hair (plaster)	.03 per lb.

PRICE AT TORONTO

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$24.00 to 29.00
2 x 4 in. to 2 x 12 in., 16 ft.	24.00 to 29.00
2 x 4 in. to 2 x 12 in., 18 ft.	26.00 to 30.00
1 in. hemlock No. 1.	24 00 to 28.00
No. 1 hemlock decking	26.00 to 29.00
No. 2 hemlock dimensions and 1 in.	20.00 to 24.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	$28.00 to 35.00
2 in. white pine, mill stock	29.00 to 34.00
⅞ x 8 and 10 in. pine shelving	36.00 to 40.00
⅞ x 12 pine shelving	45.00 to 48.00
No. 1 white pine flooring	35.00 to 37.00
No. 1 spruce flooring	27.00 to 32.00
No. 1 pine decking, D2S	28.00 to 33.00
Spruce decking	27.00 to 32.00
No. 1 pine V. or beaded sheeting	35.00 to 39.00
No. 2 pine V. or beaded sheeting	30.00 to 33.00

No. 1 Common Yellow Pine

2 x 4 in. to 2 x 14 in., 10 to 16 ft.	$25.00 to 33.00
2 x 4 in. to 2 x 14 in., 18 to 20 ft.	29.00 to 35 00
2 x 4 in. to 2 x 14 in., 22 to 24 ft.	37.00

Yellow Pine Finish

4/4 x 6, 8, 10 and 12 B. & B. smoke finish	$41.00
5/4 x " " " "	45.00
6/4 x " " " "	45.00
8/4 x " " " "	45.00
4/4 x " " " steam finish	48.00 to 50.00
5/4 x " " " "	48.00 to 50.00
6/4 x " " " "	48.00 to 50.00
8/4 x " " " "	50.00 to 55.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	$1.80 to 2.00
5 in. casing, per 100 ft.	2.00 to 2.50
8 in. pine base, per 100 ft.	2.75 to 3.25
10 in. pine base, per 100 ft.	4.00 to 4.50
4 in. pine window stool, per 100 ft.	3.00

Shingles, Lath Roofing Etc.

XXX B. C. cedar shingles	$3.80 per M
N. B. extras	4.25
No. 1 pine lath	5.00 to 5.50 per M
No. 2 pine lath	4.75 to 5.00
No. 1 spruce lath	4.75
Roofing felt (2 ply)	1 ply—$1.60 per sq. 2 ply— 2.00 " 3 ply— 2.40 "

Cedar Posts—Fence

5 in. at small end	.25 each
7 in. at small end	.50 each

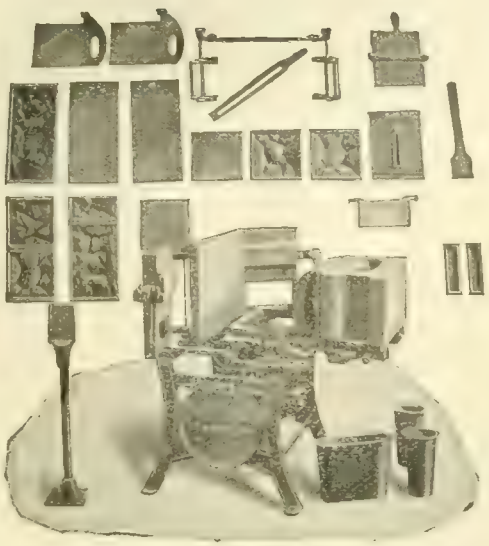
Hardware

Nails, wire, common	$2.35 cwt.
Nails, cut, common	2.95
Sash weights, cast iron	1.75
Tarred felt paper	.65 roll
Building paper	.45

Glass

United inches	Star	D.D.
Up 25	$4.25	6.25
26-40	4.65	6.75
41-50	5.10	7.50
51-60	5.35	8.50
61-70	5.75	9.75

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.



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Pumping Outfits
Steam and Gasoline Hoists
Material Elevators
Sidewalk Forms
Sidewalk Tile Machines
Concrete Carts
Wheel Barrows
Sill, Step and Window-Cap Moulds

A Complete Line of Cement Working Tools

London Concrete Machinery Co., Limited

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"MECHANICALLY FED"

The GRAND line of concrete mixers is the last word in mixer construction.
We believe we are building—right now—as good a mixer as the mind of man can ever develop.
We use the best crucible steel on all wearing parts, and build the whole machine to stand rough usage.
We want you to know what "MECHANICALLY FED" means to a contractor—Send for our book—it was written for you.

HALL & HOLMS MFG. CO.

600 OAK STREET :: JACKSON, MICH.

Price List of Building Materials—*Continued.*

Price at Toronto—*Continued*

71-80	6.25	11.00
81-85	7.00	12.50
86-90	7.75	15.00
91-95		17.50
96-100		20.50
101-105		24.00
106-110		27.50

Less 15 per cent. f.o.b. Toronto.

Wired glass ..... 18c. to 20c. per sq.ft.

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$14.00 to 17.00 per M
No. 1 dry pressed buff bricks	18.00
Red stock bricks	10.00 to 12.00
Sand Lime Brick	9.00 to 9.50
Grey stock bricks	10.50 to 11.50
Sewer Brick	11.50
Wire cut brick for foundation work	11.00
Porous terra cotta bricks	$12.00 to 15.00
No. 1 enamelled bricks, all colors, from	80.00 to 150.00
Fire brick	26.00 to 30.00
Tapestry brick	23.00 to 32.00
Sewer pipe, 4-inch	10c. foot
Sewer pipe, 6-inch	16c. foot
Verandah post caps, 16 in.	1.45 each
20 in.	1.75 "
Chimney Caps, 1 flue in 1 piece	2.00 "
2 flues in 2 pieces	3.50 "
3 flues in 3 pieces	5.00 "

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$1.80 bbl. (1.55 in car lots)
Sand, for cement or brick work	1.75 a yard
Lime	.35 cwt.
Hydrated Lime	10.00 ton
Mortar color	black, 3; red, 1½
Plaster of paris	$1.50 to 2.50
Crushed stone, 2 in.	1.40
Crushed stone, 1 in.	1.45
Crushed stone, ⅜ in.	1.50
Hardwall plaster	$9.50 to 12.00 neat
	6.50 sanded
Gravel	1.80
Hair (plaster)	.05 lb.

PRICE AT WINNIPEG

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$29.00
2 x 4 in. to 2 x 12 in., 16 ft.	29.00
2 x 4 in. to 2 x 12 in., 18 ft.	29.00

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	$4.00 & 3.50 per M
No. 1 pine lath	5.75 per M
Metal lath	.16 to .20
Roofing felt (2 ply)	2.50 per roll

Hardware

Nails, wire, common	$3.00 per keg
Nails, cut, common	3.35
Sash weights, cast iron	2.75 cwt.
Tarred felt paper	1.00 per roll
Building paper	.90
Insulating paper	1.25

Glass

United inches	Single	Double
Up 25	$4.50	6.00

Price at Winnipeg—*Continued*

26-40	4.75	6.50
41-50	5.25	7.25
51-60	5.75	8.00
61-70	6.25	9.00
71-80	7.00	10.00
81-85		11.00
86-90		12.00
		Double
91-95		$14.00
96-100		16.50
101-105		19.00
106-110		21.50

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$25.00 to 50.00
No. 1 dry pressed buff bricks	25.00 to 50.00
Red stock bricks	13.00
Sand Lime Brick	12.00
Porus terra cotta bricks	$18.00 per M
No. 1 enamelled bricks, all colors, from	100.00
Fire brick	45.00
Oriental brick	35.00
Sewer pipe, 4-inch	.10½ per ft.
Sewer pipe, 6-inch	.16½ per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$2.50 per bbl.
Sand, for cement or brick work	1.75 a yard
Lime	.32 per bu.
Hydrated Lime	12.00 per ton
Mortar color	.05 per lb.
Plaster of paris	0.75 per bag
Crushed stone, 2 in.	2.50 per yard
Crushed stone, 1 in.	2.75
Crushed stone, ⅜ in.	2.75
Hardwall plaster	12.00 per ton
Gravel	1.85 per yard
Hair (plaster)	1.25 per bale

PRICE AT VANCOUVER

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	$2.20 & 2.10 per M
No. 1 pine lath	2.25 per M

Hardware

Nails, wire, common	$3.25 per keg
Nails, cut, common	4.25
Tarred felt paper	.90 per roll
Building paper	.70

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$45.00 per M
No. 1 dry pressed buff bricks	45.00
Red stock bricks	13.00
Fire Brick	45.00
Sewer pipe, 4-inch	.14 per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$3.00 per bbl.
Lime	1.25 per bbl.
Hydrated Lime	4.25 per bbl.
Plaster of paris	4.50 per bbl.
Hardwall plaster	14.50 per ton
Hair (plaster)	14.50 per ton

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

"Ideal" Concrete Machinery

"IDEAL" Hand Block Machine

The "Ideal" Line

Block Machines, Brick Machines
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Mortar Gauges, Wall Plugs, etc.

Our latest catalogue No. 25 contains 160 pages, and is the most up-to-date work ever issued on Concrete Machinery and Products. If interested write us.

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LIMITED

211 King Street - London, Ont.

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If you buy for RESULTS buy WHERE THE QUALITY IS RIGHT

The name "Ideal" on Concrete Machinery stands for years of experience, best materials, best workmanship, and guarantees you service and satisfaction.

"IDEAL" Block Machine equipped with Automatic Tamper

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He will place the problem before all the readers, and thus get the opinion of many on the question.

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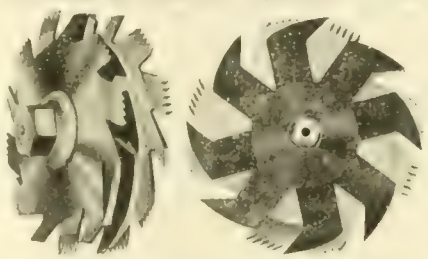

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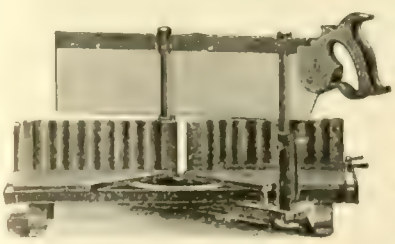

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Corrugated Backs.
Graduated.
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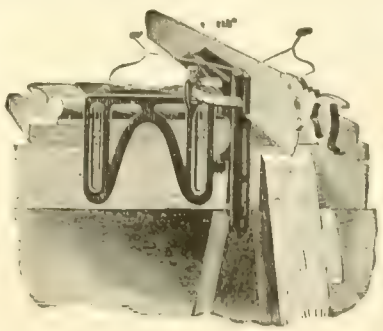

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Metal Studs
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Mortar Cement
Braid & McCurdy, Winnipeg, Man.
Mortar Colors
Ontario Lime Association, Toronto.
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Goodell Mfg. Co., Greenfield, Mass.
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Ideal Concrete Machinery Co., London.
Mortar Mixers
Eureka Machine Co., Lansing, Mich.
Hall-Holmes Mfg. Co., Jackson, Mich.
London Concrete Machinery Co., London, Ont.
Mortar Stains
Braid & McCurdy, Winnipeg, Man.
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Georgian Bay Shook Mills, Limited, Midland, Ont.
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George B. Meadows, Toronto.
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Cowan & Britton, Limited, Gananoque, Ontario.
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Ornamental Bronze Work
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Ornamental Iron
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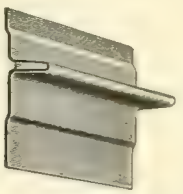

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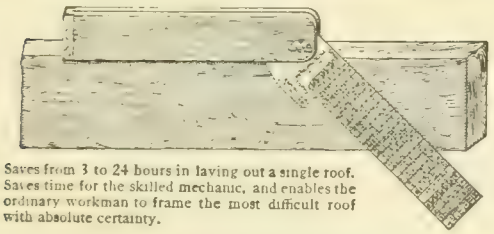

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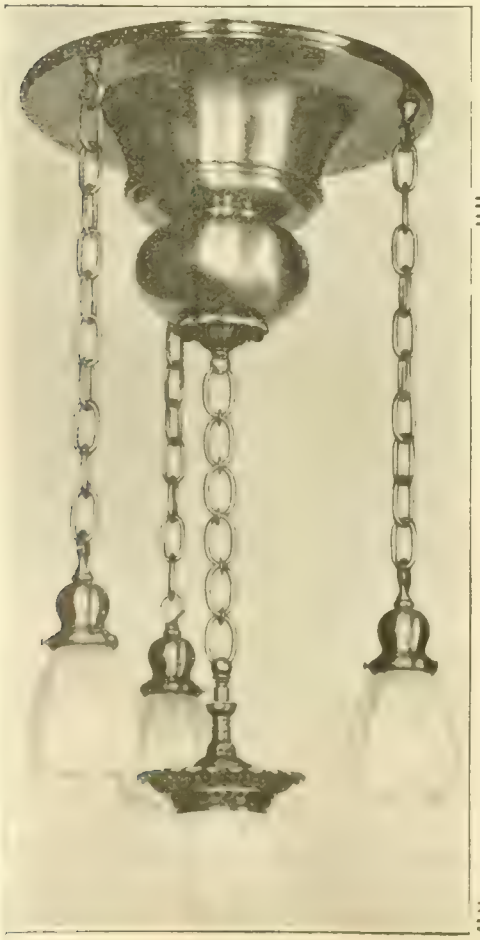

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Braid & McCurdy, Winnipeg, Man.

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Ontario Lime Association, Toronto.

Plaster Corner Bead
Metal Shingle & Siding Co., Preston.
Braid & McCurdy, Winnipeg, Man.

Plaster Paris
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Ontario Lime Association, Toronto.

Plaster Stains
Braid & McCurdy, Winnipeg, Man.

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Batts, Limited, Toronto.
The R. Laidlaw Co., Limited, Toronto.

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Unique Mfg. Co., Indianapolis, Ind.

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Alabastine Co., Paris Ont.

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Stuart Machinery Co., Ltd., Winnipeg.
Wettlaufer Bros., Toronto, Ont.

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Walkerville Roofing Mfg. Co., Walkerville, Ont.

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London Concrete Machinery Co., London, Ont.

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W. H. Thornhill Co., Winnipeg.

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William Pease Co., Hamilton.

Well Moulds
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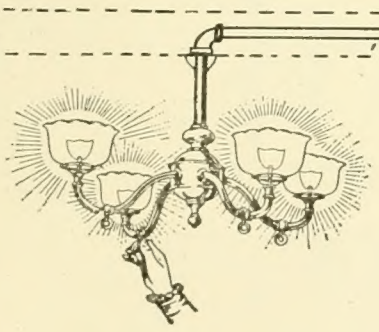

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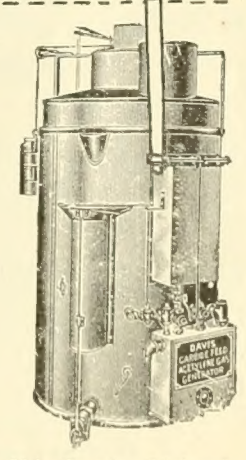

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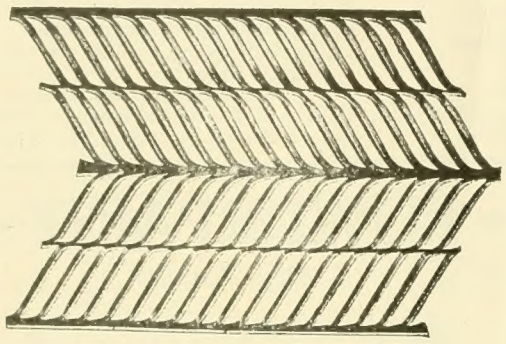
Builders! Write for Catalogue

Davis Acetylene Company, Niagara Falls Ontario

Herringbone Lath
in
House Construction



Read these Facts—

¶ Herringbone Metal Lath is much superior to the best white pine lath for interior use. It **will not shrink** and **swell** when exposed to moisture.

¶ Herringbone Lath reduces fire insurance premiums, because it makes a house more fireproof. **Metal lathed partitions do not contain enough fuel to start a fire.**

¶ Herringbone Lath will not rust nor corrode. It is specially treated by a cold japanning process.

¶ Herringbone Lath is **stiff** and requires much less plaster, because no "bulges" are formed to fill out.

¶ Old English half-beam construction, as Spanish Mission, or as Colonial, can be obtained at a low cost by the use of Herringbone Lath.

Drop us a line for a carefully prepared specification.

Clarence W. Noble
General Sales Agent

117 Home Life Bldg., TORONTO

Metal Shingle and Siding Co., Manufacturers

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¶ Finished in dark oak, ready to nail on, requires no further finish. Is waterproof on both sides, and can be easily washed. The best finish for walls and ceilings of kitchens, dining-rooms, parlors, living rooms, bedrooms and attics.

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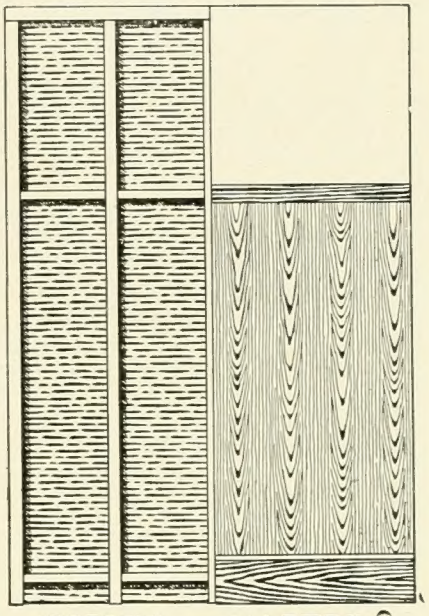

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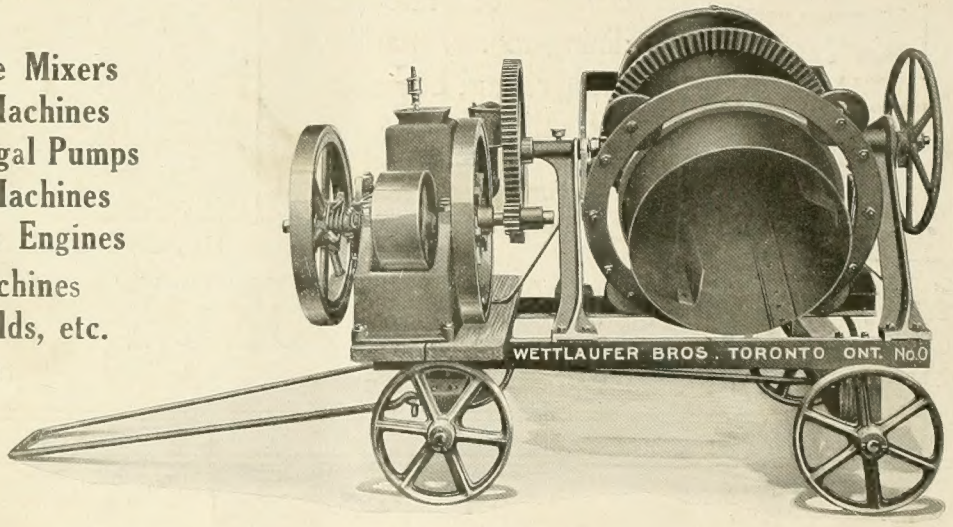
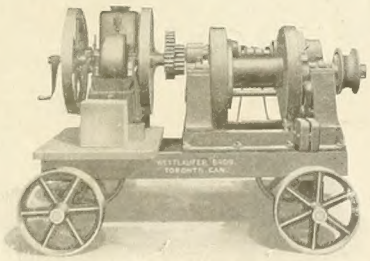


The Famous Little Wettlaufer No. O Mixer



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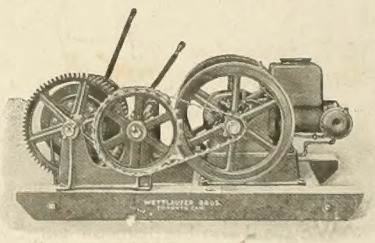

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